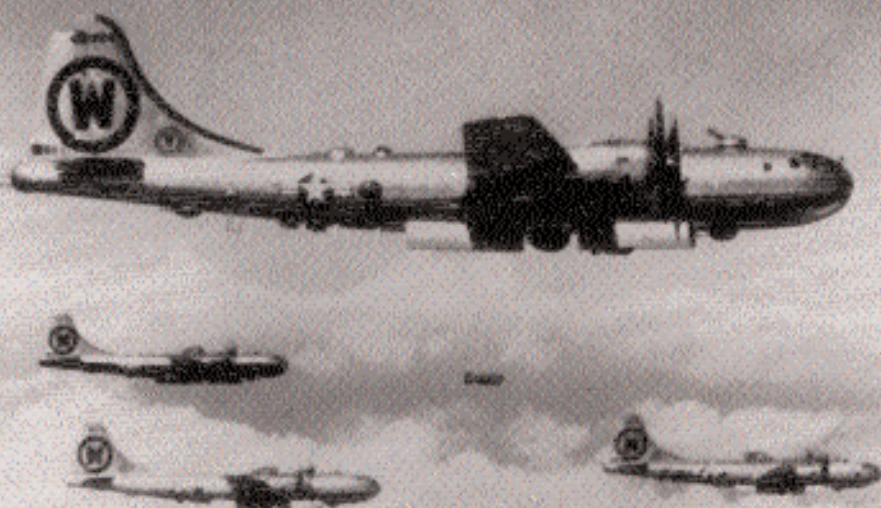




the Korean War Fiftieth Anniversary

Commemorative Edition



Steadfast and Courageous:

FEAF

Bomber Command
and the

Air War in Korea

1950-1953

AIR
FORCE
History
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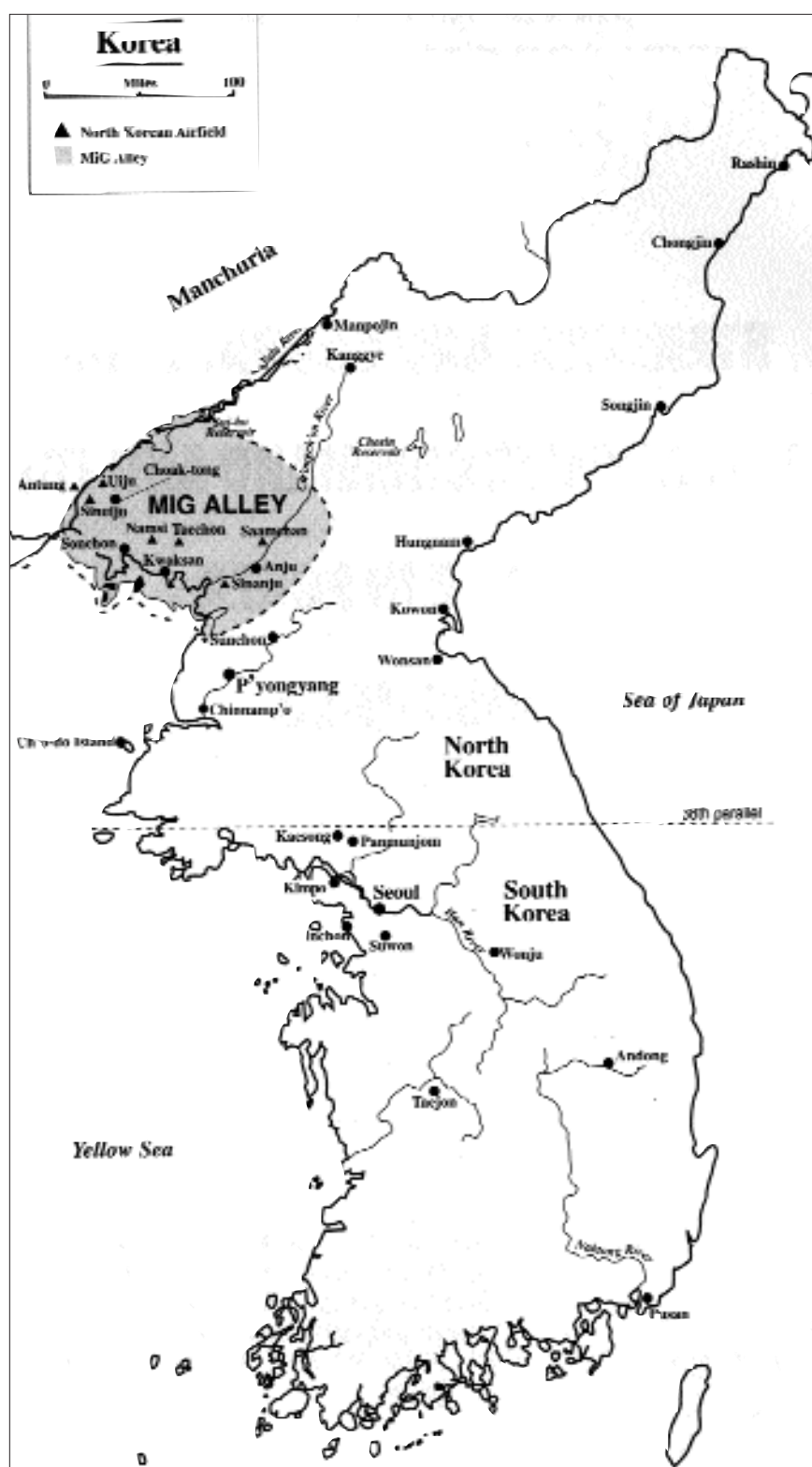
B-29s of the 92d Bombardment Group, Yokota AB, Japan on a mission over North Korea in the fall of 1950. The 92d arrived in Japan in early July and returned home in October.

The U.S. Air Force in Korea

**STEADFAST AND COURAGEOUS:
FEAF BOMBER COMMAND AND THE
AIR WAR IN KOREA,
1950-1953**

AIR FORCE HISTORY AND MUSEUMS PROGRAM

2000



INTRODUCTION

For three years, beginning in June 1950, air and ground crews of the United States Air Force (USAF) conducted bombing operations with Boeing B-29 Superfortresses in support of the United Nations (U.N.) forces engaged on the peninsula of Korea. Powered by four large radial piston engines, the propeller-driven Superfortress had been the most advanced very long-range heavy bomber developed during the Second World War. But such had been the pace of aeronautical development since the Second World War that it was now, at the time of Korea, considered but a medium bomber, and one outclassed by early jet aircraft at that. Manned principally by officers and men from the Strategic Air Command (SAC), the B-29 units carried out missions very different from the task for which SAC was trained. Instead of striking at the homeland of a major industrial power with ATOMIC weapons, the crews attacked targets of many types, showing the variety of functions that air power could perform. The bombers carried out battlefield support, interdiction, and air superiority (counter airfield) missions. They hit industrial targets of the type normally classified as strategic and also took part in an effort to utilize air power to pressure the enemy to agree to a cease-fire.

This study traces the war fought by Far East Air Forces (FEAF) Bomber Command (Provisional), the B-29 force created to attack targets in Korea from bases in Okinawa and Japan. Consisting of units belonging to FEAF and others from SAC assigned on temporary duty, Bomber Command cooperated with other USAF organizations to support operations in the Korean peninsula. The B-29 crews earned credit in all ten of the recognized campaigns of the Korean War. Politically, the war had three phases. From June 25, 1950, when North Koreans attacked South Korea, until November 2, 1950, U.N. forces defended the south and defeated the invaders. From November 1950 until July 1951, the U.N. had to deal with the intervention of Communist China and the most desperate fighting of the war. Beginning on July 10, 1951, fighting continued even as negotiations for a cease-fire between the opposing military commands were under way. This third phase, and the war, ended when the armistice was signed on July 27, 1953.

As for actual combat operations, however, Bomber Command experienced the war in terms of the opposition it encountered. Following a brief but intensive air superiority war in the summer of 1950, North Korea posed negligible air opposition, but when the Chinese entered the war in November, assisted by Soviet fighter pilots flying MiG-15 jet fighters, the limitations of the obsolescent B-29s became apparent. Communist air resistance was so heavy that by the end of October 1951 the B-29s had switched to a remarkable night campaign that continued for more than a year and a half. By 1953, SAC was well on the way to removing the B-29s from its inventory. Thus, for one last time, the B-29, a workhorse of the air campaign in the Pacific in World War II, flew into combat.

Often called a "police action," or the "Korean conflict," the fighting in

Korea was undertaken under the leadership of the United States on the authority of the U.N., to defend the Republic of Korea against the Communist North Koreans and Chinese and their Soviet supporters. Thus, it differed significantly from previous conflicts, which had been typified by formal declarations of war by the Congress. This semantic uncertainty well reflects the unprecedented situation that American fighting men faced in the Far East. For Bomber Command, the contrast between what a strategic bomber like the B-29 had been designed for and what it actually did clearly illustrates the anomalies.

INTO THE BREACH: THE B-29 AND THE OUTBREAK OF THE KOREAN WAR

On a Sunday like June 25, 1950, units of the United States armed forces on the island of Guam in the Marianas followed a normal weekend schedule. When news reached the island that day of trouble in Korea, no reason yet existed to bring people back to duty, but the officers and men of the 19th Bombardment Group (BG), Medium, at Andersen Air Force Base (AFB) (formerly known as North Field) could speculate that they might become involved at some point. From airfields in Japan and Okinawa, a few hours' flight over the ocean, the 19th's Boeing B-29 Superfortresses could attack any target on the Korean peninsula. The 19th was in fact America's long-range striking force on the western Pacific rim. Should the group receive orders, they would come from headquarters of the 19th Bombardment Wing (BW) on the same base, which would have gotten them from Headquarters Twentieth Air Force, on Okinawa, which in turn belonged to FEAF, headquartered in the Meiji building in Tokyo, Japan. The Commanding General of FEAF was Lt. Gen. George E. Stratemeyer, who reported to General of the Army Douglas MacArthur, Commander in Chief, Far East (CINCFE). From bases in Japan, the Ryukyus, the Philippines, and the Marianas, the 19th's Superfortresses could give MacArthur coverage of an area extending for 1,500 miles, a valuable resource given the political uncertainties of the region.

At first light that Sunday, forces of the Democratic People's Republic of Korea moved south across the 38th parallel, the line marking the boundary with the Republic of Korea (ROK). This was the boundary agreed upon by the United States and the Union of Soviet Socialist Republics (USSR) to separate their occupation zones when the Pacific phase of World War II with Japan ended in 1945. U.S. combat forces left South Korea in 1949, after the Soviets had removed themselves from North Korea. Each power had left advisers with the forces of its client state, but the United States made sure that the army of the ROK president Syngman Rhee had no tanks, heavy artillery, or combat aircraft to discourage him from attempting to reunify the peninsula by force. The Soviets had shown no such restraint with regard to Kim Il Sung and his North Korean army. With the encouragement of Soviet leader Joseph Stalin (who, however, took the prudent step of withdrawing his advisers before the attack), Kim was now moving to achieve that unity on Communist terms.



July 1950: Lt. Gen. George E. Stratemeyer, seated, *left*, and key officers of Far East Air Forces meet with a delegation from HQ USAF. Seated next to Stratemeyer are Kenneth B. Wolfe, HQ USAF, Maj. Gen. Earle E. Partridge, commanding Fifth Air Force, Maj. Gen. Eugene L. Eubank, Deputy Vice Commander, FEAF, and Maj. Gen. Alvan C. Kincaid, commanding Twentieth Air Force. Maj. Gen. Otto P. Weyland is standing, third from left.

When President Harry S Truman learned of the North Korean attack, he concluded that a strong response was necessary. The means for such a response, however, were limited. The United States had been amassing an arsenal of atomic weapons and a force of long-range bombers equipped to deliver them. This ready force, SAC, was the USAF's first priority and the backbone of a strategy for deterring Soviet aggression around the world, mainly in Europe. Now some of Truman's advisers had observed a rising aggressiveness on the part of the Communist bloc. The danger was that Stalin might resort to "salami tactics," taking steps not sufficiently provocative to justify the truly horrifying risk of general war. That the blow had come in Korea was surprising, but it illustrated the challenge; free nations had failed to deter the attack. By not responding in some effective way, they faced the threat of steady erosion of prestige that would undermine the credibility of any deterrent. So went the administration's reasoning when it resolved to seek action by the U.N.

Meeting in New York City, the U.N. Security Council issued a cease and desist order to the North Koreans late on June 25. Two days later, with the offensive continuing, the Security Council called on member nations to help South Korea in its efforts to resist. The Soviet delegate, boycotting the Security



Gen. Curtis E. LeMay (*center*), who commanded SAC during the Korean War, is flanked by key members of his staff. From *left to right*, Maj. Gen. J. B. Montgomery, Maj. Gen. Frank A. Armstrong, Maj. Gen. Francis Griswold, and Maj. Gen. Walter C. Sweeney, Jr.

Council, was unable to veto these resolutions. On June 27, President Truman ordered U.S. air and naval forces into action. That same day, on orders from FEAF, Twentieth Air Force ordered the 19th BG, Medium (the operating component of the 19th BW), to move all combat-ready B-29s to Kadena Air Base (AB) on Okinawa and be prepared to attack targets in Korea on June 28. On the ground in Korea, the South Korean army was proving hopelessly outgunned; Seoul, the ROK capital, fell on June 28.

Maj. Gen. Earle E. Partridge, commanding the Fifth Air Force in Japan, had been acting commander of FEAF when the fighting began. MacArthur, learning on June 27 of Truman's intention to fight in Korea, ordered Partridge to hit the North Koreans hard and fast in the hope that this alone might halt their march southward. Knowing that in a fluid situation, weakening the air defense of Japan could be risky, Partridge proposed bringing the 19th BG into action, employing the massive bombloads of the biggest bombers in the theater. MacArthur approved, the order went out, and by the early hours of June 28, enough men and planes were at Kadena to dispatch four bombers for a combat mission.

Late that afternoon, the B-29s were over Korea. More like roving fighter-bombers on an armed road reconnaissance, they split into two pairs, each pair

following a rail line north from Seoul. The bombardiers released bombs from time to time on likely looking targets. Some thirty tons of bombs were dropped in this fashion. Meanwhile, General Stratemeyer had returned from a visit to the continental United States and had now resumed command. He asked the Air Staff in Washington, D.C., to provide forty more B-29s to beef up his striking power.

The next day the 19th BG doubled its effort, launching eight B-29s before daybreak. Four bombers dropped on Kimpo airfield with good results, fighting off propeller-driven Yakovlev fighters with ease. The other four struck the main railroad station in Seoul, reportedly hitting a number of North Korean troop units transiting the station. At the same time, the chief of the U.S. Army evaluation team now in Korea was trying to establish a request that the B-29s attack the crucial railroad bridges on the Han River, which would channel the continuing North Korean offensive south of Seoul.

On June 29, MacArthur visited the collapsing battlefield and saw that U.S. ground troops were essential to prevent the North Koreans from overrunning the peninsula altogether. From Tokyo that night the CINCFE urged action. Truman approved, and on June 30 troops of the army of occupation in Japan began to make ready. MacArthur's plan was to continue a withdrawal toward a defensible line somewhere in southwestern Korea, sustained through the port of Pusan. Air power provided by FEAF would work with the 24th Infantry Division and the other army units on their way from Japan to stiffen the South Koreans' resistance.

By now, eighteen Superfortresses were at Kadena with the 19th BG. Because of the damage the North Korean air force was doing to the retreating ROK troops, FEAF decided to send the B-29s against the airfield at Wonsan on June 30. At the last minute the call for hitting the Han bridges came through, and the mission was redirected. It was too late to change the bombloads, however, and fifteen bombers launched with fragmentation bombs aboard. They struck what appeared to be troop formations on the approaches to the bridges, with no real knowledge of the results. Far East Command (FEC) and FEAF had so far failed to achieve effective coordination between the ground battle and the B-29s' supporting effort.

On July 1, the 19th BG hit the bridges across the Han, and in subsequent days, the Superfortresses flew other missions. The first troops of the 24th Division had reached Pusan by air on July 1, and a battalion task force had made first contact with the enemy on the 5th. On July 2, B-29s hit the airfield at Yonpo, near Hungnam on the east coast. It was becoming clear that the North Korean ground and air onslaught was overwhelming the South Korean and U.S. forces pitted against it, and that only air power could restore the balance.

Key to the success of the Korean air effort would be the fight for air dominance over the peninsula. But beyond this, U.N. forces had to be able to strike at the enemy's war-making and war-sustaining capabilities. And here, in large part, was the role for SAC and the B-29 force. With a courageous and distinguished history written in flame and blood in the skies over the Third Reich

and Imperial Japan, SAC constituted the nation's main air striking force in the atomic era. Its commander, Lt. Gen. Curtis E. LeMay, concentrated on preserving and enhancing his ability to deliver a fast and massive attack on the Soviet Union. Because the nation's stockpile of atomic weapons was considered limited, LeMay had no interest in using atomic weapons against aggressors in a local theater like Korea. If war with the main adversary did not come, the force had to be kept intact to deter its happening.

In reality, SAC was two forces. The first, the atomic strike force, consisted of massive Convair ten-engine B-36 heavy bombers, growing slowly from what had been a service test unit; Boeing B-50 medium bombers, a modernized version of the Superfortress; and a few aging B-29s modified for the atomic mission. The second force consisted of several wings of conventional medium bombers, unmodified B-29s able to deploy to distant theaters when needed. The only combat B-29s not in SAC were those belonging to the 19th BW on Guam. Accordingly, when Stratemeyer asked for more B-29s, they had to come from SAC.

Responding to Stratemeyer's request for more medium bombers, Headquarters USAF on July 1 alerted the combat groups of two SAC B-29 wings to ready themselves for movement to the Far East. These were the 22d BG, Medium, at March AFB, California, and the 92d BG, Medium, at Spokane AFB, Washington. Two days later, Gen. Hoyt S. Vandenberg, Chief of Staff, USAF, obtained approval from the Joint Chiefs of Staff for the actual deployment of these groups. The Air Staff ordered selected staff members from SAC's Fifteenth Air Force headquarters

at March AFB to prepare to leave at once, and it chose the charismatic and dynamic commander of the Fifteenth, Maj. Gen. Emmett O'Donnell, Jr., to command the bombers in FEAF. "Rosie" O'Donnell had commanded the 73d BW in the Marianas late in the Pacific war, one of the B-29 units that had pounded Japan into capitulation during 1945.

SAC headquarters at Offutt AFB, Nebraska, began to look at the tasks that the B-29s might perform in Korea. The North Koreans were armed and trained by the Soviet Union, and their army contained numerous veterans of the Soviet war against Ger-



Maj. Gen. Emmett O'Donnell, first Commander of FEAF Bomber Command

many. The whole premise of strategic air power was that it could strike an enemy's industrial base to fatally weaken its frontline forces. The North Koreans' industrial base was in Soviet territory; however the United States clearly had no intention of going to war with the USSR. On the other hand, North Korea's own industry, though limited in scale, not only served its own military effort, it was a source of production for the Soviets as well. Also, the North Korean electric power system supplied power for industry in Communist China's Manchurian provinces.

During the years that Korea was part of their empire, the Japanese had developed industry on the northeast coast. Four of five North Korean industrial centers were in that area—Rashin (also known as Najin), Chongjin, Hungnam, and Wonsan. Rashin had oil storage and rail yards; Chongjin, ironworks; Hungnam, chemical and light-metal industries; and Wonsan, a railroad center and oil refineries and storage. The fifth center, P'yongyang, near the west coast, was the capital and had important military manufacturing. North Korea had one of the world's major electrical power systems consisting of elaborate hydroelectric dams, especially at the Sui-ho Reservoir along the Yalu, the geographic boundary between Korea and Manchuria. Factories in Manchuria consumed half of the output of this power grid.

Planners at SAC headquarters began to develop a plan for bombing these targets at the end of June 1950. The best plan seemed to be to attack each center in strength, hitting all targets regardless of priority. Although area attacks using incendiary bombs would produce the greatest destruction of these industrial centers, SAC planners also developed an alternative if incendiaries were unacceptable. This plan was for precision drops of high-explosive bombs. When O'Donnell left for the Far East, he carried with him a copy of the SAC plan.

The alert order ruined plans at Spokane and March for the weekend of July 4. The SAC mobility plan, designed to move units overseas quickly, proved successful. Flyaway kits, containing everything that a unit could expect to need on short notice, were loaded, and the bombers took flight. By July 8, both groups were beginning to arrive at their Far Eastern bases, the 92d BG at Yokota AB, Japan, and the 22d BG at a tent city at Kadena. These were fields with runways of minimally 8,000 feet, adequate for B-29s. The bombers arrived by way of the Hawaiian Islands, Kwajalein, and Guam. One of the pilots in the 22d was Capt. David C. Jones, later to become chairman of the Joint Chiefs of Staff. On July 8, 1950, Stratemeyer created FEAF Bomber Command (Provisional) with headquarters at Yokota AB, Japan, and he named O'Donnell as commander. Bomber Command was to include all three B-29 groups in FEAF, the 19th as well as the 22d and the 92d BGs. It also included the 31st Reconnaissance Squadron, Photographic, equipped with RB-29s and stationed at Johnson AB, Japan. By July 12, the two new groups were ready to fly missions.

B-29 nomenclature reflected the changing times, as planes grew in size and progressed from propellers to jets. Classed as a medium bomber in 1950,



On their arrival at Kadena Air Base, Okinawa, the 22d Bombardment Group moved into a tent city, July 1950.

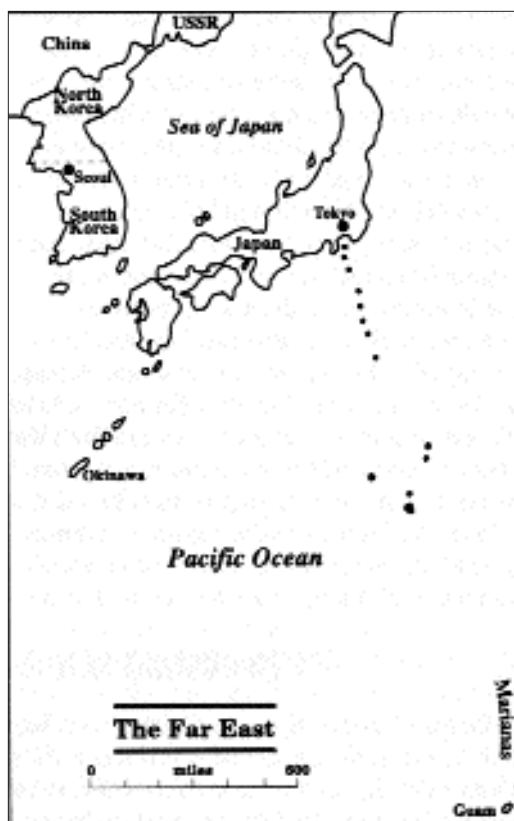
the Boeing B-29 Superfortress had originally been a VHB (very heavy bomber), for in 1940 it was designed to outclass the B-17 and B-24 heavy bombers that were then critical to the buildup of U.S. air power. Weighing 140,000 pounds fully loaded, it could carry a bombload of as much as 20,000 pounds, depending on how much fuel it needed to reach the target. It featured multiple remotely controlled gun turrets with .50 caliber machine guns. Its wingspan measured 141 feet; its length was 99 feet. With its service ceiling of nearly 40,000 feet, the B-29 could expect to encounter the jetstream, the powerful west-to-east winds that speed around the globe at velocities sometimes exceeding 200 miles per hour. At its birth, the Superfortress had also been called the VLR (very long-range) bomber. Its combat radius of more than 1,700 nautical miles was one of its most valuable features. At a time when Americans seemed to desire no military capability except for defense of the continental United States, an expensive, long-range airplane might be thought excessive. Still, in 1940, horizons were broadening, and planners had hoped the B-29 would be a "Hemispheric Defense Weapon."

Airmen who advocated the development of the B-29 had seen its value for strategic bombing—attacks on targets of importance to the strategic design of the war, especially those in the industrial heart of a distant enemy country. The B-29's great range made it useful in such a role, and over the vast Pacific distances, it served to devastate the Japanese homeland in the Second World War. At the end of that conflict, B-29s modified in Project Silverplate had dropped atomic bombs on Hiroshima and Nagasaki.

Although production was halted at the end of the war, the B-29 had been the backbone of SAC, which used modified versions of the bomber to expand its atomic strike force. But in 1950, SAC still had several wings of unmodified B-29s. The old heavy and medium bombers were no longer in the inventory. The new light bomber was the Douglas A-26 Invader attack plane of World War II, now redesignated as the B-26. Besides the B-29, newer types of medium bombers included an improved version of the Superfortress powered by

different engines called the B-50 and the revolutionary new six-jet sweptwing Boeing B-47 Stratojet. (The production model of this jet bomber first flew the same day fighting began in Korea.) The heavy bomber in service was the Consolidated B-36 Peacemaker. This ten-engine giant (powered by six large radial engines driving pusher propellers and four pod-mounted turbojet engines), the ultimate in piston-engine technology, had been designed in 1941 as a true intercontinental bomber. Not until 1948 did the B-36 entered service with SAC. Additional specialized models of the B-29 were also available. FEAF's 31st Reconnaissance Squadron (Medium) at Johnson AB, Japan (replaced in November 1950 by the 91st) had RB-29s, equipped for photographic reconnaissance. Weather reconnaissance planes, WB-29s, were in the Far East theater, and some WB-29s also served the Air Force in the atomic detection program, collecting radioactive air samples that would reveal nuclear explosions. Other Superfortresses were being modified as SB-29 search and rescue planes. Another type of B-29 was used in SAC for aerial refueling: the KB-29M and KB-29P were the forerunners of a new type of airplane essential for future warfare and the needs of a global air force.

Thus the B-29 was clearly obsolescent in 1950. It had always had engine problems, due to a poorly thought-out cowling design that prevented efficient cooling of the four two-bank 2,200-horsepower radial piston engines. As late as 1950, an engine might overheat and have to be shut down, or even fail catastrophically, typically as the plane laboriously climbed to altitude. But there were other problems as well. Its cruising speed of 220 knots and even its top speed of 350 knots no longer protected it from modern jet-powered interceptors; furthermore, its interior was too small for it to accommodate the electronic equipment needed for modern combat in the radar era.



The B-29's crew of eleven fit into three pressurized crew compartments connected by crawl spaces. In the forward compartment were the pilot and co-pilot, navigator, bombardier, and radar operator. The radio operator and gunner-mechanics operating centrally controlled machine guns were located aft of the bomb bay. The tail contained a position for a gunner. SAC crews were trained in the use of the Norden bombsight or the AN/APQ-13 radar.

A particularly striking deficiency was in electronic warfare. First, the course of instruction for actual full-time electronic countermeasures (ECM) operators was difficult and time-consuming, and the supply of these men was insufficient. Second, the station for the operator was unsatisfactory. In most crews, the radio operator was also the ECM operator, but the radio and the ECM equipment were located at separate stations at opposite ends of the tunnel. For barrage jamming, the operator could set the channel, turn on the jammer, and go back to the radio position. But for spot jamming, he had to remain at the panel, monitoring for radar signals, tuning and operating the jammer as needed. His seat was the lid of the chemical toilet. Racks were available to hold the equipment, but their space was limited. Third, in the western Pacific the ECM equipment to be installed on the racks was in short supply, and it had deteriorated in storage since the end of war in 1945.

OFF TO COMBAT IN KOREAN SKIES

Despite its limitations, the B-29 at first faced minimal opposition from the North Koreans, whose air arm consisted of only seventy fighters, mostly Soviet-built Yakovlev Yak-7s and Yak-9s. These propeller-driven planes had been a success against the Germans in the Second World War, but they had little chance of hitting a high-flying Superfortress moving as fast—and maybe faster—than they were. Likewise, at this point in the war, North Korea had few radars and antiaircraft artillery pieces, negligible command and control capabilities, and thus, essentially, no real air defense system. As long as the B-29s did not face a modern air defense system, the bombers would face little danger in Korea.

Command and control of combat air forces in a theater of war has always been difficult. In Korea, the coordination of air, ground, and sea forces, even when under a single commander with a powerful mind and ego, required firmly established procedures, a common set of priorities, and a clear understanding of the capabilities of a variety of complex weapons. The problems of coordinating last-minute changes in B-29 targeting assignments in June and disputes over helping to cover Eighth Army's retreat illustrated the problem.

In the Far East in 1950, the issues of command and control were complex. FEAF had B-29 medium bombers, Douglas B-26 Invader light bombers, and fighter-bombers of several types, all able to contribute in some way to the overall effort. Because the B-29s required large and well-equipped bases safe from enemy ground and air attack, they were not based in Korea. As a result, Bomber Command needed to receive its orders with sufficient time allowed for

it to load and fuel the big bombers for the long flight to the target. For these reasons, last-minute changes proved unworkable. But the Superfortresses, with their large bombloads capable of being dropped with some precision, had a contribution to make that justified the effort to get them to the target. Because they could range over the entire Korean peninsula, they were not confined to striking targets in a limited area.

MacArthur's responsibilities had largely been defined by the Joint Chiefs of Staff, subject to approval by Secretary of Defense Johnson and President Truman. Since the surrender of Japan to the allies in 1945, MacArthur had headed the military occupation as Supreme Commander, Allied Powers, while U.S. forces in the region constituted FEC and included both FEAF and Naval Forces, Far East (NavFE), the latter under Vice Adm. C. Turner Joy. MacArthur's staff at General Headquarters (GHQ) Far East was not a true unified command headquarters staff. Rather, it was an army theater staff with no subordinate army component headquarters; consequently, service administrative matters were handled at GHQ. The only truly joint element of GHQ was the Joint Strategic Plans and Operations Group, a small staff of eight officers. But with MacArthur's long-standing practice of giving his air commander considerable freedom of action, in Korea a situation now arose that demanded more interservice cooperation than GHQ could provide.

Stratemeyer and Joy had their own service component headquarters. The Air Force component included three numbered Air Forces: the Fifth in Japan under Partridge, which now assumed responsibility for tactical air operations in Korea; the Thirteenth in the Philippines; and the Twentieth in the other islands of the western Pacific. A Far East Air Materiel Command also provided support. To these Stratemeyer added at the outset of hostilities in Korea both FEAF Bomber Command (Provisional) and an airlift element called FEAF Combat Cargo Command (Provisional).

The continuing emergency conditions of the ground war had provoked controversy. Maj. Gen. Edward M. Almond, Chief of Staff at GHQ, expressed frustration that FEAF had not been able to do more to fend off the North Korean armored forces; on July 4, FEAF had to cancel a mission against airfields at P'yongyang to avoid interfering with operations by navy aircraft from the Seventh Fleet's carrier forces. On July 9, Stratemeyer gave Fifth Air Force and his new Bomber Command orders to concentrate on enemy attacks against Americans at the front. The next day, Stratemeyer went to see MacArthur and asked for the authority to control the air war. With a ringing declaration of confidence from the legendary commander, he was able to issue mission directives to his subordinates.

Meanwhile, coordination was working poorly. On July 10, ten B-29s sent to attack mechanized forces had been unable to make radio contact with the tactical air support parties directing the attacks. The B-26s, in turn, had gone against bridges. This assignment of medium bombers against tactical targets and light bombers against bridges looked bizarre to an experienced airman. The next day saw better results, with attacks on bridges near the front line.

Still, Partridge argued that Fifth Air Force had the means to deal with all the targets and that B-29s should be used in deep interdiction.

These incidents demonstrate the problem Stratemeyer was trying to solve with his mission directives. Bomber Command was to strike rail, road, and seaport transportation targets throughout North Korea; industrial targets connected with the enemy's war production; and logistical targets in general. Headquarters FEAF was to authorize strikes in South Korea, attacks on airfields, and reconnaissance operations. The bombers were to keep "well clear" of the Manchurian border. Fifth Air Force was to support the ground forces and perform a variety of missions near the front lines.

But on July 14, Almond created GHQ Target Group, including officers from the Joint Strategic Plans and Operations Group as well as consultants from FEAF and NavFE. Stratemeyer was concerned that this group expected to have more authority than was appropriate. The Target Group had questioned the July 13 attack on Wonsan and agreed that although they would not claim control over strategic bombing operations, they would assign targets to the B-29s as needed. The implication was clear that GHQ would keep Bomber Command on the job in support of the Eighth Army at the front line. On July 18, Stratemeyer again met with MacArthur to insist on direct coordination between Fifth Air Force and the Eighth Army, now in Korea under Lt. Gen. Walton H. Walker. Calling Almond into the room, the theater commander directed that Walker's and Partridge's headquarters would handle the assignment of air missions in their area. Still, GHQ could issue directives tasking medium bombers against interdiction or industrial targets. An agreement outlining the coordination of operations by carrier-based aircraft remained vague and ineffective.

As soon as GHQ Target Group began its work, it revealed its lack of experience and stature for the work of targeting. Its failure to assemble all of the available material, such as maps, produced target lists that contained numerous serious errors. The first list, on July 19, described bridges near the battle area that did not exist. On FEAF's proposal, MacArthur agreed on July 22 to the formation of a FEC Target Selection Committee, to consist of general officers from GHQ, FEAF, and NavFE, to oversee the work of the GHQ Target Group. Its first task would be to develop an interdiction plan. Following some acrimonious meetings and hours of hard work, the committee produced a plan to strike interdiction targets in North Korea, allocating two groups from Bomber Command to these targets and a third group for use in close support of the troops at the battlefield.

The GHQ Target Group soon passed from the scene; the FEC Target Selection Committee remained in business for about six weeks. The FEAF Target Committee—later renamed the FEAF Formal Target Committee (which had access to the targeting expertise and resources of FEAF Headquarters and included representation from Bomber Command and Fifth Air Force)—soon assumed direction of the targeting effort.

On July 7, the U.N. Security Council directed the formation of a unified

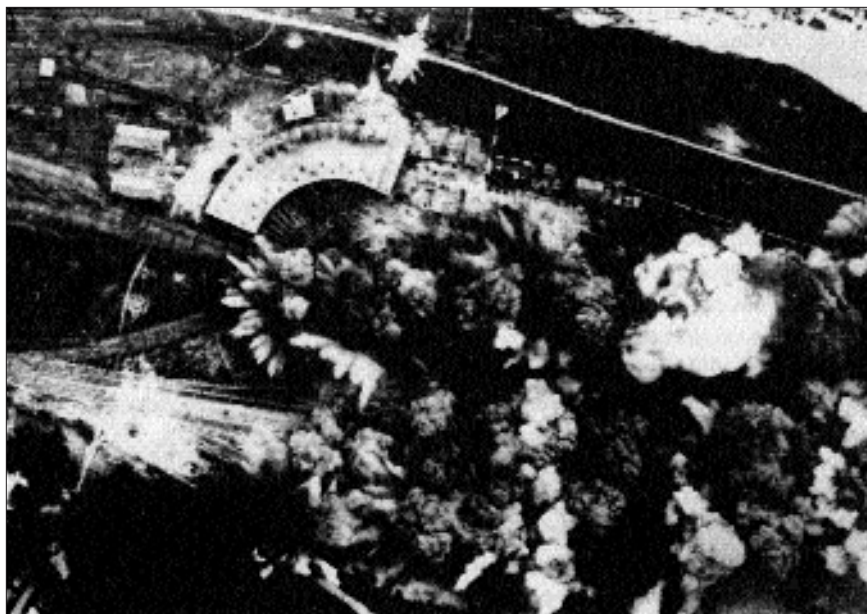
military command for the defense of Korea, with the President of the United States serving as executive agent. The next day Truman appointed MacArthur as the commander of this force. MacArthur formally became Commander in Chief, United Nations Command (CINCUNC) on July 24. His headquarters now became GHQ UNC/FEC. He received his instructions from the President through the Joint Chiefs of Staff, who coordinated their decisions with the Department of State. As the Soviets soon ended their boycott of the Security Council, that body was once again paralyzed by vetoes and could no longer be the forum for directing the war. From that point, the U.S. government was forced into a cumbersome procedure of informal consultation with the governments that contributed forces to the UNC. The "limited war," for which a strategic rationale has been meticulously analyzed in the years since the end of fighting, thus actually began as a series of political constraints designed to ensure that all participating nations accept the "war's" conduct.

As the nation watched the first engagement of U.S. ground troops in combat since the end of the war in 1945, public dismay grew at the increasingly grim news from Korea. The already greatly outnumbered troops engaged in combat had been on occupation duty for years and lacked the force size, equipment, and training to confront the aggressive North Korean enemy. Through July 1950, as more ground troops joined Eighth Army in Korea, they continued at best to offer a fighting retreat and to make narrow escapes. Sometimes no escape was possible; on July 20, Maj. Gen. William F. Dean, Commanding General of the 24th Infantry Division, was captured by the North Koreans near Taejon.

During the retreat, GHQ continued to consider the situation an emergency, justifying the devotion of all air assets to shielding the U.N. troops as they withdrew. Fifth Air Force was starting to organize a tactical support system to assist Eighth Army. On July 7, MacArthur had ordered the army to lay out a realistic bomblines. Inside the bomblines, air attacks had to be controlled to prevent friendly troops from being hit, but beyond the line, the Air Force could strike any target it could identify. On July 10, despite communications problems, B-29s were able to hit bridges and a train, and the next day, targets behind enemy lines. On July 12, the 19th BG went against transportation targets around Seoul. The 92d BG, newly settled in at Yokota, joined in the mission. The Yaks were particularly active that day, and, despite the long odds, one B-29 was hit and went down, the first B-29 lost in combat during the war.

The next day, July 13, saw both of FEAF Bomber Command's new groups in action. Their targets, a railroad marshaling yard and an oil refinery at Wonsan, when attacked, clearly had the potential to weaken the enemy's support network significantly. Thus, fifty of Bomber Command's Superfortresses dropped a total of 500 tons of bombs. Despite this impressive strike, the seriousness of the Korean situation demanded continuous heavy strikes against the North Koreans' frontline forces. This happened the very evening after the Wonsan strike, as FEAF had yet another emergency to face.

From this point, Bomber Command joined in the battle on the front of the



Bombs smash a rail yard at Andong, September 1950. At *right center*, a secondary explosion marks where bombs set off a load of ammunition.

retreating U.N. forces. This emergency in fact lasted through the rest of July. The 92d BG was joined in due course by the rest of the command. The assignment was not one for which the B-29 crews had been trained. Coordination with the ground control stations, as required for operations so close to the front lines, was difficult. Bombers sometimes failed to connect with the Fifth Air Force controllers. Operating at only 10,000 feet—fortunately against little enemy air opposition or even heavy flak—the bombardiers still had trouble identifying targets that were by their nature fleeting. The controllers had a hard time with large numbers of B-29s and asked that they be spread out. Some local diversions took place, as on July 14 when three B-29s hit Kimp'o airfield where North Korean aircraft had been reported. The Okinawa groups were able to run a mission against the rail yards at Seoul on July 16 and other missions against North Korean airfields. On July 17, Superfortresses hit rail yards near the combat area. On July 28, during a mission against Seoul's rail yards, an episode occurred that highlighted the need for better mission coordination between the coalition air power forces now arrayed against North Korea. A B-29 from the 22d BG saw two Yak-like fighters break out of rain clouds astern and rapidly close on it in a classic pursuit curve. Understandably, the alert B-29 gunners opened fire, one of the fighters burst into flame, and its pilot bailed out. The plane was in fact a "friendly": a Supermarine Seafire from the carrier HMS *Triumph*, whose pilot had foolishly approached in a threatening manner. Fortunately, an American destroyer plucked the erring airman from the sea.

INTERDICTION AND SUPPORT: THE SUPERFORTRESS VERSUS BRIDGES AND BATTLEFIELDS

Aside from the demands to meet urgent battlefield needs, Stratemeyer was finally beginning to make a case for a focused, long-term interdiction campaign. When Vandenberg visited the theater in mid-July, MacArthur acknowledged to him that these ground support missions were not the best use for the B-29s but that the emergency required it. On July 18, Stratemeyer again protested the lack of effort going into interdiction, the most important contribution the B-29s could make to the overall effort. MacArthur provided Stratemeyer with a new directive sending FEAF against logistical targets in areas just beyond the bomblines, close enough to have an immediate effect on the battle, but targets more suitable for the meticulous planning required for medium bomber missions. MacArthur's targeting staff provided a list of bridges and road junctions. In spite of the serious deficiencies suspected in the list, Stratemeyer sent it to O'Donnell. Bomber Command now proceeded to go after whatever targets they could find. Most of the bridges were small and required only one or two bombers. With as little opposition as the U.N. fliers had to face, the bombardiers could get a look at the ground, identify the targets, sight, and drop. The results proved remarkable: based on photoreconnaissance data, Stratemeyer claimed on July 24 that fifty-eight bridges had been destroyed.

But this success only highlighted the fact that the enemy continued to send supplies from the north with relative impunity. On July 24, Maj. Gen. Otto P. "Opie" Weyland, FEAF's vice-commander for operations, persuaded the FEC Target Selection Committee to commit two B-29 groups to a major interdiction effort north of the 38th parallel. MacArthur soon approved the plan, and the FEAF Target Committee began to draw up detailed instructions for what was now to be called Interdiction Campaign Number 1. Besides Bomber Command, the Fifth Air Force would operate from the 38th parallel to the front line. In addition, FEAF would coordinate carrier-based aircraft from Task Force 77 operating offshore with the B-29s. By August 2, Bomber Command was ready to start operations. The next day MacArthur, disturbed by intelligence reports of continuing movement of enemy supplies southward, gave his unequivocal support to the plan.

Over the same period, FEAF planners were working with Bomber Command on the SAC plan for hitting industrial targets. The Joint Chiefs of Staff in Washington shared Vandenberg's concern that the B-29s were being tied down with frontline support while the SAC plan and the urgent needs of interdiction were being shortchanged. On July 29, the Joint Chiefs agreed that two more B-29 groups should deploy to the Far East to provide Stratemeyer with the resources for an expanded mission. Accordingly, SAC alerted the 98th BG at Spokane and the 307th BG at MacDill AFB, Florida.

Meanwhile, the SAC plan was about to become effective. As noted, one of the first Bomber Command missions had been against Wonsan. The next target



A crewman of the 307th Bombardment Group at MacDill AFB, Florida, bids farewell to his family before departing for the Far East, August 1950.

was Hungnam, with its chemical and light-metal works. With help from Japanese firms that had been involved in the original construction of these factories, as well as new reconnaissance photographs, FEAF planners were able to develop usable target folders. Although visual bombing, in daylight with the Norden bombsight, was the ideal method for ensuring that the intended target was hit, planners, realizing the unreliable weather, also prepared material, assisted by the 548th Reconnaissance Technical Squadron, to support radar missions. Getting the target material from Japan to the groups on Okinawa complicated the process. The 19th BG did not have the AN/APQ-13 radar, so the 22d and 92d BGs would do the job. On

July 30, forty-seven bombers hit the Chosen Nitrogen Explosives Factory at Hungnam, partly with radar and partly visually. The B-29s were back to hit another plant on August 1 and yet another two days later.

The day after the first Hungnam mission, MacArthur told the Joint Chiefs that he agreed on the value of hitting industrial targets. The movement orders for two new groups went out on August 1. The next day the FEC Target Selection Committee agreed to commit two bomber groups to the industrial targets, while three groups would continue the interdiction campaign. By direction from the Joint Chiefs, incendiary bombs were not to be used. The risk of unfavorable international publicity was too great.

On August 4 and 5, the Superfortresses continued the interdiction plan by hitting the marshaling yards at Seoul. The two new groups from SAC began to arrive in the Far East: the 98th BG based at Yokota and the 307th BG at Kadena, where the tent city grew more and more crowded and the need to control the traffic of nearly one hundred four-engined giants posed a continuing challenge to the base operations staff. Yokota, too, had to contend with the heavy air traffic around Tokyo.

Both groups completed their movement over the next few days. The 98th BG flew its first mission on August 7, joining the attack on the P'yongyang arsenal and railroad yard. The next day the 307th BG was in action over the P'yongyang yards as well. With approximately 130 B-29s now in the Far East, major missions were flown every three or four days, as was more routine interdiction or combat support on intervening days. On August 10, Superfortresses hit Wonsan's rail yards and oil refineries with good results.

Chongjin and Rashin were the next main target areas on the list. They were the northernmost of the industrial centers on the east coast. Rashin was seventeen miles from the Soviet border, and the U.S. State Department was worried about the implications of an attack, especially in view of the danger of a navigational error leading to a violation of Soviet air space. Headquarters USAF warned FEAF that any mission against Rashin should involve visual bombing only. General O'Donnell never received the message and some fifty B-29s went to Rashin on August 12 and bombed by radar. For some reason, the bomb pattern was well off target, and most bombs exploded in the countryside.

The interdiction campaign proceeded simultaneously. Many bridges were easily disposed of, but while the Japanese were in Korea, they had spanned the main rivers with durable modern structures. Still, with no significant aerial opposition remaining, B-29 crews could make multiple passes at 10,000 feet, approaching at the best angle, in a stream of individual bombers seeking a hit. For most bridges, 500-pound bombs, well placed, eventually did the job, but 1,000-pound bombs were needed for larger steel spans. The toughest was the main multiple-span steel West Bridge over the Han at Seoul. It resisted attack so stubbornly that the crews called it the elastic bridge. Only the 19th BG had its B-29s equipped with the racks for 2,000-pound bombs that seemed the only hope for destroying this bridge. Since late July the 19th BG's crews had repeatedly attacked it, and although it was clearly costing the Communists a tremendous effort to repair, it still stood. Stratemeyer promised a case of Scotch whisky to the crew that succeeded in taking it down. On August 19, crews from the 19th BG had seriously weakened the structure and hoped to finish the job the next day. Later in the day, the carriers USS *Valley Forge* and USS *Philippine Sea* reported attacks by their dive-bombers and concluded that the spans, while still standing, were unusable. The next day, the B-29s returned to Seoul and found two spans in the water, presumably having collapsed during the night. They dropped a third and flew home. MacArthur awarded a trophy to the 19th BG and to the Navy's Air Group 11, and Stratemeyer gave each group the case of whisky.

On August 5, U.N. ground troops withdrew into positions along the Nakdong River, forming the Pusan perimeter achieving part of MacArthur's plan. For six weeks, thanks to constant air support by Air Force, Navy, and Marine airmen that shattered North Korean attackers, the U.N. forces held the line in the perimeter, supplied through the port of Pusan, halting the North Korean advance. At the same time, GHQ planners began to look at a possible amphibious landing on the west coast of Korea, in the rear of the enemy as he was contained on the Pusan perimeter. On August 23, MacArthur selected Inchon on the west coast of South Korea, near Seoul, as the point for the landing.

The Communists continued their pressure along the Nakdong through August and early September, desperately trying to counter the increasingly effective air attacks and the growing strength of the defenders in the pocket. Fifth Air Force provided continuing support, but, in light of the savage combat, on

August 13 MacArthur began once again to call for B-29 support, this time for what GHQ called carpet-bombing. Inspired by the accomplishments of heavy bombers on the front in Normandy in 1944, the planners hoped that massive amounts of ordnance dropped on Communist troop concentrations near Waegwan would have a devastating effect. O'Donnell asked only for assurance that the target was worthwhile, and on learning that 40,000 North Koreans were assembling in the target area, he issued the orders. The bombers had already been loaded with 500-pound and 1,000-pound high-explosive bombs rather than with fragmentation weapons that were optimum for the job, so the twelve squadrons available went in on August 16, after a weather delay of twenty-four hours. Ninety-eight Superfortresses dropped a total of 859 tons of bombs in a 3-by-7-mile target box. Results were uncertain, but the ground commanders were enthusiastic about the beneficial effect on the morale of U.N. troops seeing such destruction wrought to their front.

With the intensive pace of the Superfortress bombing command, it was becoming clear that Bomber Command was exhausting its target list. The FEC Target Selection Committee shifted assignments on August 20 to put three groups on industrial targets and retain two for interdiction. Bomber Command pushed on with its industrial targeting and the interdiction plan. On August 22, another mission to Rashin was diverted because weather conditions would prevent visual bombing; the bombers hit targets at Chongjin instead. Finally, at the urging of the State Department, concerned about a widening of the war, the Joint Chiefs on September 1 barred any future mission against Rashin. Other northern targets were soon disposed of: Hungnam on August 25, Songjin on the 28th, Chongjin on the 29th, and the metalworks at Chinnamp'o on the 31st. Not surprisingly, by the time MacArthur invaded Inchon, the Superfortresses had disposed of all initially identified strategic targets. They had dropped approximately 30,000 tons of bombs in the course of 4,000 sorties, an average of over seven tons of bombs per Superfortress launched against the foe, at the cost of four B-29s lost.

Bomber Command persisted against the interdiction targets, including striking with early precision guided munitions. On August 23, the 19th BG started using VB-3 *Razon* bombs, 1,000-pounders fitted with radio-controlled tail fins that allowed the bombardiers to guide their weapons in to the targets by controlling *Range* and *azimuth only*. These bombs had numerous guidance malfunctions, and the 19th BG needed time to rectify them. (Eventually, of a total of 489 *Razons* employed until the weapon was withdrawn from service in December 1950, 331 hit their targets. This gave a success rate of nearly 68 percent, approximately the same level of success as the first laser-guided bombs used in Southeast Asia roughly two decades later. Fully 96 percent of the last 150 *Razons* used hit their targets, a level of accuracy remarkable even by the standards of Operation Desert Storm and Operation Allied Force in the Balkans, the latter nearly a half-century later.)

But, for the most part, the anti-bridge campaign was a campaign of dropping conventional "dumb" bombs. And now, the air superiority won by Ameri-

can airmen over North Korea paid off. With little or no Communist air opposition, B-29 crews were free to make multiple bombing passes at bridges rather than one hurried bomb run, dropping from altitudes as low as 10,000 feet to improve accuracy. As many as fifteen of the B-29s would take off on a bridge-busting mission, each targeting a particular bridge. Superfortresses would cruise back and forth, individual airplanes dropping several bombs and then, after felling a span, flying to another bridge and attempting to drop it. The whole affair took on the aspect of a grim contest. As Col. James Edmundson, the commander of the 22d BW subsequently recalled, "On the days when the boys were really hot, getting their bridges on the first bomb, we would begin to run short of targets and there would really be a race to get to the last few targets towards the end of the mission! . . . One of our crews destroyed four bridges in one day, while another crew lost one engine en route to the target. . . They were able to knock out two bridges before returning to Kadena." In the three days between August 27 and 29, the 22d BW destroyed a total of eighteen bridges, earning a letter of commendation from Stratemeyer.

O'Donnell now reported that Bomber Command no longer had enough bridge targets "to go around." While the Communists scored gains, the line of the Naktong held, and the Pusan perimeter continued to pin down the main strength of the North Koreans. MacArthur was overseeing the planning for the counterblow at Inchon. In this anticipated invasion, air power would be of critical importance, with B-29s striking at targets behind the enemy front lines. To support this operation, FEAF planners completed work on Interdiction Campaign Number 2 during the first days of September 1950. The first objective would be to limit the flow of reinforcements to the landing area at Inchon; intelligence was revealing a buildup of Chinese Communist forces in Manchuria, and interdiction of North Korean routes might help fend off these forces should they intervene in the war. The B-29s would also have to hit the rail yards hard at Seoul during the last days before the landing at Inchon. MacArthur emphasized the need for massive air support for the Eighth Army as it broke from the Pusan perimeter. Stratemeyer made it clear that Bomber Command needed five days' advance notice for a carpet-bombing mission. On September 9, the B-29s began flying missions in support of the landing and breakout. One of the five groups would fly a maximum effort each day against rail yards, while two other groups would each send eight bombers to make cuts in the railroad lines. On September 13, some sixty B-29s made a special effort against the rail system of North Korea.

Finally, on September 15, X Corps landed at Inchon, and Eighth Army began to fight its way out of the Pusan perimeter. Fifth Air Force provided support for both operations. The interdiction attacks by the B-29s paid off, and the North Korean army began to collapse after the landing in their rear. Meanwhile, B-29s stood by to support the breakout from the Pusan perimeter. Weather prevented the visual bombing required so close to friendly positions, so the planned mission on September 16 was diverted to Wonsan and P'yongyang. On September 17, Bomber Command stood by, but the next day



Bombs strike P'yongyang, North Korea, during an attack on September 20, 1950.

forty-two B-29s of the 92d and 98th BGs hit two targets near the crossing points on the Naktong. The results proved extremely satisfactory to the army commanders on the spot.

The plan worked. Worn down by constant air attack, desperately short of supplies, in peril of being cut off by the Inchon landing, and hit hard in front on the Naktong, the North Korean army collapsed. Bomber Command joined in the pursuit, flying surveillance by day and night over the lines of the enemy's retreat and dropping flares by night to illuminate targets. The B-29s hit troop concentrations in North Korea and interdiction targets that could support a rally of the enemy. At Stratemeyer's initiative, B-29s had experimented with flare dropping, to allow other strike aircraft—notably the nimble B-26 Invaders—to attack road and bridge targets at night. Now those experiments bore deadly fruit. On September 22, roving B-26s bombed and strafed a lengthy North Korean ammunition train south of Suwon that had been illuminated by a long string of flares dropped from a high-flying B-29. The attacking Invaders triggered secondary explosions that ripped the train apart for the better part of an hour. By day other B-29s dropped surrender leaflets on retreating North Korean columns, and numerous prisoners taken into captivity with these leaflets in their possession indicated that these psychological warfare missions had been worthwhile.

With the south increasingly secure, bombing operations intensified in anticipation of the war extending further north, perhaps to the Yalu itself. On September 22, a B-29 of the 98th BG spotted a town with a rail marshaling yard and attacked it. Several days elapsed before Bomber Command was able

to determine that the actual target had been Antung, across the Yalu River in Manchuria. Stratemeyer ordered O'Donnell and Partridge to reemphasize the need to stay clear of the Chinese border. Meanwhile, Headquarters FEAF began to urge attacks on North Korea's hydroelectric stations. On September 26, B-29s of the 92d BG hit an electric plant near Hungnam. That same day, GHQ was debating whether the electric system should be hit. MacArthur was in favor of such a strike, but the Joint Chiefs now anticipated that U.N. forces should advance into North Korea. Consequently, no value remained in hitting more industrial targets. Also on September 26, U.N. forces fought their way into Seoul. The next day, the Joint Chiefs authorized MacArthur to enter North Korea, and on October 1 he ordered a cessation of all bombing in South Korea. South Korea—at least for the time being—was safe.

COMBAT BY DAY: SUPERFORTRESS VERSUS MiG IN NORTH KOREA'S SKIES

With the defeat of the North Korean army, the pressure on Bomber Command began to ease. On October 7, the U.N. General Assembly approved a U.S.-sponsored resolution in favor of achieving stability throughout the Korean peninsula. Although intelligence reports indicated a buildup of Communist Chinese forces in Manchuria, MacArthur rejected the possibility that they would intervene. He met with Truman at Wake Island on October 15 and convinced him that continuing to the Yalu held little risk.

South Korean troops started across the 38th parallel on October 1, and U.S. forces soon joined the march north, X Corps landing on the northeast coast. For Bomber Command, this meant the continued shortening of the target list. No sooner had FEAF planners furnished a list of bridges or other interdiction targets than various locations would be deleted as being south of the bomblines. Still required to keep well clear of the Manchurian and Siberian borders, Bomber Command could see its target area disappearing. Furthermore, any bridges remaining on the list might prove more valuable to the advancing U.N. forces if left intact. O'Donnell cut back on the sorties to be flown. On October 22, MacArthur authorized Stratemeyer to send the 22d and 92d BGs back to the continental United States. The two groups began their return across the Pacific on October 27, and the same day that O'Donnell received orders to stand down the rest of his command.

Meanwhile, the U.N. drive northward continued, and P'yongyang fell on October 19. But resistance began to solidify, and Fifth Air Force units operating near the Yalu River began to encounter air opposition. MacArthur was receiving additional information concerning Chinese Communist forces along the Yalu. Stratemeyer now proposed a stronger effort by U.N. air power. MacArthur also wanted attacks on the bridges across the Yalu, provided that no aircraft actually crossed the border. The Joint Chiefs expressed considerable uneasiness due to the potential for such action to provoke the Chinese. Not until MacArthur revealed his growing concern with reports that the Chinese were

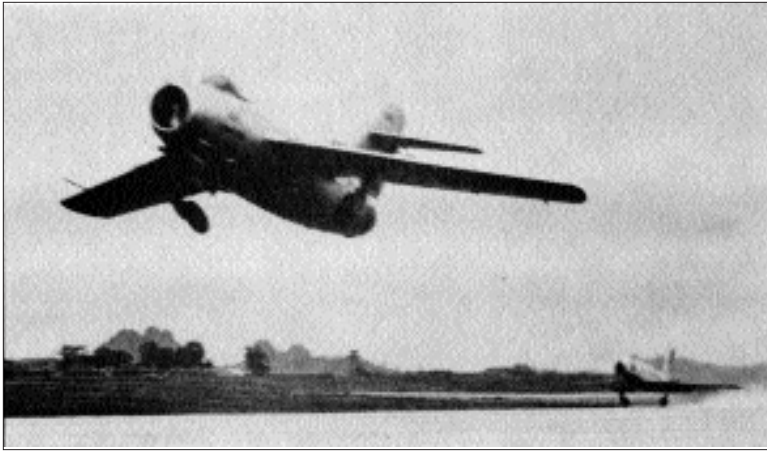


The "Spirit of Freeport, Long Island," a B-29 of the 22d Bombardment Group, Kadena AB, Long Island, lands at the end of its 28th mission, ready to return to the continental United States.

already crossing the Yalu in force did the Joint Chiefs withdraw their ban on air attacks within five miles of the Manchurian border.

If reports of Chinese troops crossing the Yalu were disturbing, the opposition FEAF was now encountering was equally so. On November 1, U.S. planes were pursued by Communist sweptwing jet fighters, identified as MiG-15s. The appearance of the Mikoyan-Gurevich MiG-15 was an ominous development. This fast, relatively nimble, and high-flying sweptwing jet fighter was supremely capable of shooting down the B-29 and had, in fact, been explicitly designed with a powerful armament of two 23 mm cannon and one 37 mm cannon just for the purpose of shooting down atomic bomb-armed Superfortresses. In production since mid-1948, the MiG-15 was the Soviet Union's most effective fighter. With a service ceiling of 50,000 feet and a speed of 664 miles per hour at 40,000 feet, it posed a serious threat not only to the Superfortress but to all other U.N. aircraft as well, as there was no other aircraft in the theater that had performance matching or even approaching the speedy Russian jet. Though these MiGs bore the markings of the Communist Chinese air force, evidence at the time suggested that the pilots were Russian, a fact confirmed after the war.

The first impact the MiGs had was upon aerial reconnaissance operations. On November 9, MiGs hit a RB-29 of the 31st Reconnaissance Squadron. Although the tail-gunner, Cpl. Harry J. LaVene, shot down one of the interceptors, the big craft was forced to crash-land in Japan with five crewmembers



A Soviet-built MiG-15. FEAF Bomber Command first encountered the new high-performance Soviet-made jet fighters in November 1950. The plane shown here was brought into U.S. hands by a defector in 1953.

killed. The reconnaissance mission along the Yalu now became primarily the job of the jet-propelled Lockheed RF-80 Shooting Stars and three North American RB-45C Tornado four-engine reconnaissance bombers attached to the 91st Strategic Reconnaissance Squadron. But though jet-propelled and faster than the graceful (if ponderous) RB-29, these two straight-wing designs were still seriously threatened by the even faster MiGs. There were other problems as well. The RF-80 lacked the range to be fully effective, and the RB-45 suffered from airframe buffet when its bomb bay doors were opened to drop photo flash bombs at night, thus degrading the quality of any images taken by the vibrating cameras. O'Donnell now received orders to use incendiaries in attacks on key Communist base areas at towns in the hostile zone, including Kanggye, Sahchu, Pukchin, and Sinuiju, which was just across the Yalu from Antung. On November 4, the B-29s found Kanggye under cloud cover and dropped their incendiaries on Chongjin instead. The next day, weather forced the bombers to the secondary, which this time was Kanggye. On November 8, Bomber Command launched a huge mission of seventy aircraft against Sinuiju.

Incendiary missions continued throughout November, but equal attention now went back to the Yalu River bridges, with Admiral Joy dispatching Navy dive-bombers to share in the effort. The task was daunting. The Americans were to drop bombs only on the Korean end of each span. Bombers could not under any circumstance cross the Yalu. In one case, at Namsan-ni, attacking the bridge was completely impossible due to a bend in the river. All attacks had to be visual, which meant, with winter weather closing in, that good bombing days would be scarce. Under the circumstances, even good bombing had poor prospects of doing decisive damage to a bridge.



On November 8, 1950, FEAF Bomber Command launched a maximum effort mission against Sinuiju on the Yalu River. Incendiary bombs destroyed 60 percent of the target area, but the two bridges were still standing.

Worse, perhaps, of all was that the halcyon days of air superiority that had allowed an almost leisurely approach to dropping bridges were, in the face of the MiG threat, long gone. MiGs based across the Yalu River in Manchuria could sortie against U.N. strike flights, making hit-and-run attacks before diving for home. At the same time, the hot pursuit of enemy aircraft returning to bases in Manchuria was forbidden. As long as friendly governments were even more concerned to limit the conflict than the United States was, this ban would likely remain in effect. B-29 crews often observed MiGs rolling down the runway on a leisurely takeoff from secure bases. They would climb rapidly to altitude, disappearing in the sky before reappearing as deadly little diving arrowheads that plunged through formations, spitting strings of 23 and 37 mm cannon shells before darting back across the Yalu. Many days, no opposition appeared, but when it did, it could be deadly. On November 10, MiGs shot down a B-29 of the 307th BG on an incendiary mission against Uiju, up the Yalu from Sinuiju. Two days later, another B-29 was badly damaged by flak near Manpojin. On November 14, MiGs damaged two Superfortresses on a mission against the Sinuiju bridges, which apparently went undamaged. MacArthur then relinquished Sinuiju as a target too close to Communist bases

near Antung, but the Air Force and Navy persisted against the other bridges.

In the end, about half of the bridges were cut, but the Communists could continue with repairs. Furthermore, pontoon bridges were supplementing their effort, and FEAF intelligence officers learned from Japanese engineers in Tokyo that the Yalu itself froze so hard that railroad tracks could be laid across the ice. Indeed, MacArthur and his staff had little or no idea of the actual scale of the presence of the Chinese People's Volunteers. Referred to in U.S. documents as the Chinese Communist forces (CCF), these troops had been infiltrating for weeks, moving mainly by night and effectively hiding in the mountains. The B-29 incendiary attacks had undoubtedly killed numbers of Chinese, but U.N. forces had made no attempt on the scale necessary to stop their advance.

U.N. ground forces began their "final" advance on November 24, and the CCF delivered their massive and deadly riposte two days later. Within hours the U.N. forces were reeling backward, and one of the most harrowing retreats in U.S. military history had begun. In the west, the X Corps made their withdrawal by sea, while, in the east, others slogged southward in bitter cold. In attempting to interdict the new CCF offensive, Bomber Command faced a more serious challenge than before: as with the changed bridge campaign, the MiGs would not allow the leisurely multiple passes on road columns and supply lines by individual bombers. They now had to fight their way to the target in formation, with fighter escort, on a single bomb run. Until high-performance sweptwing North American F-86 Sabres were available in some strength, the technologically outdated escort force available would leave a great deal to be desired.

The western alliance viewed the new Communist offensive with the utmost seriousness. On December 6, the Joint Chiefs ordered all U.S. commanders to review their war plans. While it was soon obvious that the Soviets planned no immediate moves elsewhere, the security of Europe seemed threatened. The North Atlantic Treaty Organization (NATO) quickly agreed to form a combined military command in Europe, and Truman named General of the Army Dwight D. Eisenhower as Supreme Allied Commander, Europe. The Joint Chiefs accelerated planning to dispatch major land and air forces to Europe. In the Far East, MacArthur's reaction to the Chinese offensive was to challenge the limitations the U.N. and Truman had set on the war hitherto. Communist China was now unmasked as an aggressor power that had to be stopped. O'Donnell agreed that attacks on the airfields in Manchuria were essential to regaining air superiority in the theater, but MacArthur favored an even broader air and land offensive against Red China. The NATO allies, on the other hand, had no interest in such an expansion of the war in Korea. On November 30, Truman had answered a question from the press by implying that the use of atomic weapons was under consideration. Prime Minister Clement R. Attlee of Great Britain flew at once to Washington to obtain assurances on this score. There were few options for using the limited stockpile of atomic weapons in the Far East theater, and it was clear that no risk was to be taken to expand the war in Korea. The deterrent aimed at the Soviet Union was

not to be weakened by any diversion. Since MacArthur appeared to believe that U.N. forces could not stay in the peninsula without more aggressive action against China, Truman had to make it clear that Korea could not yet be evacuated, even as the retreat continued. General Walton Walker was killed in a vehicle accident on December 24, and his successor Gen. Matthew Ridgway assumed the task of establishing a rallying point and halting the Chinese offensive.

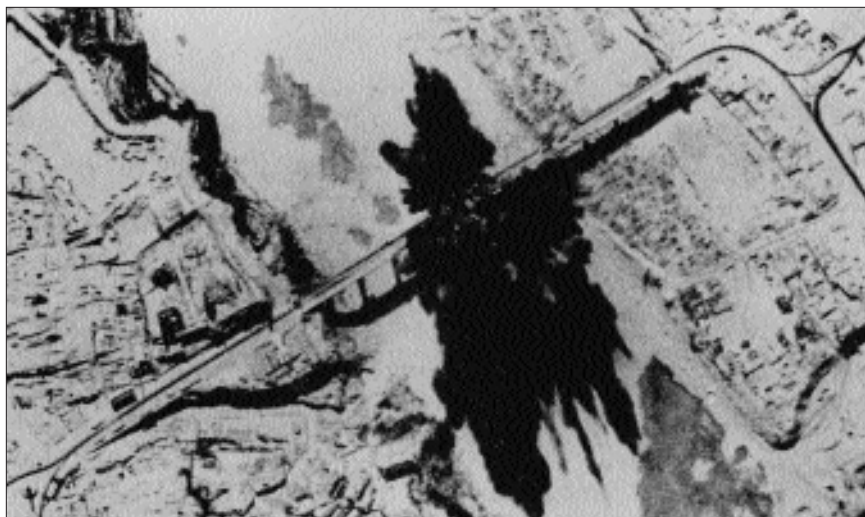
The extreme and grave danger posed by the Chinese intervention in the war now placed an even greater need upon the already overstretched air power forces operating in the Korean theater. Despite growing encounters with aggressive MiGs and increasingly menacing antiaircraft fire, Bomber Command continued its pace throughout December, as FEAF did all it could in covering the U.N. retreat. The B-29s continued to hit potential concentration points and supply centers in the rear of the advancing enemy. By December 15, FEAF had developed what was called Interdiction Campaign Number 4. This plan was designed to force the Communists to abandon rail transport altogether and rely on trucks, thought to be in short supply, traveling on vulnerable roads to carry supplies to the front. The FEAF plan divided North Korea into zones and assigned various commands to hit and police targets in those zones. Bomber Command was assigned the zones to the northwest, nearest the Yalu and containing the main transportation lines southward from the Manchurian border.

MacArthur, however, took a line similar to that of the emergency in July and required that Bomber Command devote two-thirds of its sorties to hitting towns that could serve as supply centers and concentration points for reinforcing troops. To provide a sustained effort, Bomber Command would fly twenty-four sorties per day, except when a maximum effort was required. Given that overtaxed and inadequately cooled B-29 engines tended to last about 400 hours, time-consuming inspections were necessarily frequent. The loading of bombs was complicated, and changing the type of bomb loaded on short notice was impossible. Hence a high sortie rate required meticulous advanced planning, and could not be maintained for long.

Despite these challenges, Bomber Command continued its attacks. P'yongyang, so recently an allied air base after MacArthur's forces had swept northwards, was again back in enemy hands. The B-29s hit the airfield and rail yards there in mid-December, returning again on January 3 and 5, 1951, when Bomber Command launched two maximum-effort incendiary missions. On January 12, the B-29s hit Wonju with new 500-pound fragmentation bombs equipped with proximity fuses that caused them to burst in the air and scatter fragments. The 19th BG had been experimenting with the VB-13 *Tarzon* bomb, a guided 12,000-pound weapon sent into the theater on an emergency basis as a dedicated bridge-buster. *Tarzon* employed the same guidance system as the much smaller *Razon*. On January 13, one of these destroyed two spans of the railroad bridge at Kanggye, an auspicious if misleading beginning, because *Tarzon* operations, as shall be seen, were anything but as useful as the smaller *Razon* ones.



B-29s of FEAF Bomber Command head for the enemy supply center at Anju, North Korea, for an incendiary attack on December 4, 1950. Partridge was providing maximum support to the retreating U.N. forces as the Chinese advanced.



Snow covers the ground around the highway bridge at Kanggye, North Korea, as a *Tarzon* bomb from a B-29 of FEAF Bomber Command finds its target in early 1951.

Despite all of this effort, the Chinese invasion rolled southwards, and, for the second time, Seoul fell into Communist hands. Just where the advance would halt was again open to question. In its struggle to slow and finally halt the Chinese advance, Eighth Army called for large-scale air support. Even though this was the task of Fifth Air Force, the B-29 could drop a large amount of high explosive on key targets. In the early months of 1951, Bomber Command began to work with ground-based radar units to furnish accurate bombing near the battlefield. Controlled by Fifth Air Force, these units used the AN/MPQ-2 radar to guide aircraft, including B-29s, to the point where they could drop their deadly loads over enemy positions. Later in 1951, the AN/MSQ-1 radar was added to the inventory. This arrangement proved satisfactory to Eighth Army, although it required continued training and testing, something highlighted by a near-tragedy in October of that year, when a MSQ-1 controller inadvertently directed a B-29 onto his own position. Luckily, no loss of life occurred; with its large bombload, the B-29 could be extremely intolerant of error.

In reacting to the Chinese offensive in November, MacArthur had spoken of "an entirely new war." The Truman administration recognized that if Korea could be held, the fighting might not end for some time. The Air Staff arrived at the same conclusion. One effect of this was the recall of O'Donnell to resume command of Fifteenth Air Force. Brig. Gen. James E. Briggs succeeded him at Bomber Command on January 11, 1951. But generals were not the only



Maj. Gen. Earle E. Partridge, right, commanding Fifth Air Force, greets General of the Army Douglas MacArthur, CINCUNC, left, at an advanced air base in Korea, December 1950.

returnees to the continental United States. The Defense Department now favored a policy of rotating U.S. personnel through the Korean theater. A rotation program began in FEAF, and SAC began supplying air and ground crew personnel to Bomber Command to replace the men who were returning home. A six-month tour of duty in Bomber Command became the rule, with some adjustments for aircrew. Bomber Command became more than ever an extension of SAC, despite the command lines through FEAF and the UNC. SAC policies like spot promotions came into use and Bomber Command had quotas for promoting members of flying crews on the basis of their effective performance. Rotation also applied to commanders. In addition, the 98th and 307th BWs, which had remained at home when they were stripped of their combat groups in August 1950, now deployed to Yokota and Kadena so that the organizational structure better reflected SAC methods.

In response to the Korean crisis, Congress had extended enlistments, increased draft calls, and called up men in the reserve components. These measures stimulated volunteering for the Air Force, and soon the basic training center at Lackland AFB, Texas, was building tent cities to accommodate the recruits. To man the new bomber groups being formed in SAC, reservists were essential. LeMay would have preferred graduates of the Air Training Command's (ATC's) schools, but too few were in the pipeline to meet the need. Until ATC graduates became available, the command would have to cope with the morale problems of reservists, many of whom had flown B-29s over Japan in the previous war and resented having to respond again. When ATC formed a Combat Crew Training School (CCTS) for B-29s at Randolph AFB, Texas, its



B-29s of the 98th Bombardment Group from Yokota AB, Japan, strike targets in North Korea as the U.N. forces seek to stem the Chinese offensive, January

students were largely reservists with experience in light bombers.

Now that the Chinese had intervened and the Truman administration decided to limit its strategy to merely preserving South Korea's independence, a strange (but no less deadly) air war over North Korea began that lasted until the signing of the armistice in July 1953. On the ground, the front stabilized in June 1951 along a line just north of the 38th parallel. The Fifth Air Force with air combat units based in Korea had overall control of operations against the Communists. Bomber Command units in Japan and Okinawa operated in cooperation with Fifth Air Force. The Communist air forces were based for the most part in Manchuria, especially around Antung. Truman insisted on keeping Manchuria off limits, but in January 1951 the U.S. government communicated to the other UNC nations the decision that a major air attack on U.N. forces from the bases in Manchuria would provoke retaliation against those airfields. The Communists never did launch major offensive operations from the Manchurian bases. (At one point, though, on November 18, 1952, Russian MiGs flown from near Vladivostok deliberately attacked a combat air patrol from Task Force 77 over the Sea of Japan, paying for their rashness with several MiGs lost to aggressive Navy Grumman F9F-5 Panther pilots from the carrier USS *Oriskany*.)

The consequence of this bewildering, frustrating, and—at times—infuriating limited war was a seesaw battle over North Korea. Increasingly, North Korean air defenses improved as Soviet personnel and radar equipment moved into the theater. The resulting battle pitted the Soviet-built defensive system against U.S. offensive technology. It served as a test-bed for the technology and tactics being developed for the nuclear offensive against the Soviet Union, the centerpiece of U.S. retaliatory strategy on which deterrence was based. If



General of the Army Douglas MacArthur, CINCUNC, *right*, greets General Hoyt S. Vandenberg Chief of Staff of the Air Force, *left*, on his arrival in Japan, January 14, 1951. Vandenberg was visiting the theater at the height of the crisis precipitated by the Chinese intervention in the Korean War.

anything could be seen as the work of international Communism, it was the air defense system used in Korea. Much of the equipment was based on designs developed in Nazi Germany and refined in part by the same German scientists and engineers under Soviet control after the war. Built in the Soviet Union, this equipment was manned by North Korean or Chinese crews with Soviet instructors and operators.

Early warning radars were at Vladivostok in Soviet territory; Antung, beyond the Yalu in Manchuria; and P'yongyang, after the Chinese had recovered it. Ground Controlled Intercept (GCI) radars to direct the MiGs were installed near the Yalu, and gunlaying radars directed gun batteries throughout North Korea. In addition, radar-directed searchlights were available for night defense. North Korea's radar order of battle consisted of a variety of Soviet systems, together with examples of American, British, Japanese, and, perhaps, even former Nazi German *Freya* systems captured by the Russians. The major Soviet systems were: the RUS-2, a mobile truck-mounted 65-85 megacycle early warning (EW) radar; the P2M *Pegmatit*, a fixed-based version of the RUS-2; *Dumbo*, a 65-85 megacycle EW and GCI radar; *Kniferest*, a *Dumbo* derivative; *Token*, a 10 cm mobile EW and GCI radar; and *Whiff*, a Soviet copy of the American SCR-584 fire control radar, a very precise radar that had played a key role in defeating the V-1 cruise missile menace during the Second World War. So serious was the growing radar threat that the Air Force, in August 1951, began "ferret" electronic reconnaissance and signal intelligence flights over Korea with a Boeing RB-50G Superfortress from SAC's 55th Strategic Reconnaissance Wing. At the end of 1951, North Korea had approximately 70 radars in service, but by the following summer, this had jumped to approximately 110 scattered across the North, some as close as four miles to the front. In one report, Navy ECM operators assessing their North Korean opponents concluded that the North Korean radar network was "of good quality and intelligently used."

All this was bad news for the B-29. Key intercept radars along the Yalu, together with the presence of large MiG bases at Antung (Dandong), Tatungkou, Takushan, and Mukden (now Shenyang), established the zone that soon became known as "MiG Alley" to U.N. airmen. Given the short radius of action of the Communists' most effective fighter, the MiG-15, the area covered by the "Alley" was typically within sight of the river. MiGs occasionally made sorties as far south as Ch'o-do and Sok-to islands in the west, Haeju and P'yongyang in the central part of the country, and over to Wonsan on the east coast. Very rarely, MiGs flew "show-the-flag" sorties high over Seoul. The cover that the MiGs could provide to air bases south of the Yalu did allow the Communists to launch combat sorties from bases around Sinuiju, a dangerous development, for it implied that MiGs could control airspace enabling the use of southern bases to which MiGs could be deployed to extend the air control process, perhaps eventually all over North Korea. In addition, anti-aircraft artillery was liberally deployed throughout North Korea, and the Chinese attempted to extend their base structure farther into North Korea.

The resulting battle for air superiority never threatened U.N. control of the air over the actual battlefield, but the importance of interdiction targets in MiG Alley as well as the need to hit airfields brought the bombers, both B-29s and B-26s, into this corner of northwestern Korea, into the very heart of MiG defenses. In 1944, U.S. strategic bombers in Europe had engaged the German air force not only because of the need to strike at Nazi industry, but also because by threatening critical targets they forced the enemy's fighters into the air to be destroyed by bomber escorts. So by striking at vital interdiction targets in North Korea, the B-29s would initiate air battles. Unfortunately, the straight-wing and definitely subsonic Lockheed F-80 Shooting Stars and Republic F-84 Thunderjets were not able to meet the challenge of both protecting the Superfortresses and destroying faster, transonic sweptwing MiGs: The only real opponent the MiG confronted that could master it was superlative but overstretched North American F-86 Sabre.

In January 1951, the Communists began to develop a chain of airfields throughout Korea to provide support for a major spring ground offensive, presumably with the object of throwing the UNC into the sea. Early in the war, North Korean attempts to undertake organized ground attack missions against U.N. forces had been frustrated by American fighter pilots who quickly seized control of the skies. But now, with the MiG, the Communists had a strong chance at reasserting their control over North Korean skies, creating conducive conditions for the utilization of their ground attack aircraft. It was imperative that these bases be destroyed or rendered unusable, a task for which the Superfortresses, with their high payloads, were eminently suitable. A plan to avoid simply cratering construction sites eventually evolved, since the armies of



B-29s of the 98th Bombardment Group, Yokota AB, Japan, on a mission over North Korea, January 1951.

North Korean laborers that Communists could call upon would have little trouble repairing the damage in short order. Using General Briggs's proposal, FEAF aircraft would try to strike at the fields just at the moment they became operational. Reconnaissance photographs would provide invaluable for this scheme. On January 23, the B-29s bombed P'yongyang Main airfield with considerable success. Wary of MiGs, FEAF did not venture further north into the MiGs' lair until March. But while March was a propitious month for the U.N.—Seoul was retaken on March 14, this time for good—the ides of March were not at all good for the Superfortresses.

On March 1, the B-29 crews had gotten a foretaste of the heavy battle that lay ahead. The target was the bridge at Kogunyon. Eighteen Superforts of the 98th BG launched from Yokota and, running into headwinds, were late for their rendezvous with their F-80 escorts. The result was that after bomb release nine MiGs jumped them. Ten bombers sustained damage; though none were lost—a tribute to the big bombers' robust structure—three were nevertheless so badly damaged that they had to land in South Korea. Yet in the next big strike in the same area on March 23, B-29s from Okinawa met no opposition whatever. It appeared that the Communist defensive radar net was in a shake-down phase, but its performance was bound to become more consistent. On March 29, Briggs sent the 19th and 397th BGs against the Yalu bridges. The river was thawing and the Chinese could no longer get across on the ice. Visual bombing was not possible, however, and most bombers struck P'yongyang airfield instead. Three B-29s of the 19th BG, one with Group Commander Col. Payne Jennings, Jr., aboard, were carrying giant *Tarzon* guided bombs and



A Fifth Air Force F-80 escorts a B-29 from the 19th Bombardment Group, Kadena, AB, Okinawa. The number four engine of the B-29 is feathered, and the F-80 is a welcome escort in hostile skies.

found clear weather at Sinuiju, site of a notorious tough bridge. One bomber had to turn back with mechanical trouble; another dropped its bomb and missed. Jennings radioed that his B-29 was having engine trouble and would have to jettison the bomb to lighten its load. This was the last transmission received; the plane was never found. (Subsequent analysis revealed that when jettisoned at low altitudes, the *Tarzon* bomb had a lethal tendency to break up, shedding its tail surfaces and triggering an instantaneous detonation. Accident investigators concluded this terrible flaw had probably cost the gallant Jennings and his crew their lives. Following this discovery, *Tarzon* rapidly disappeared from service. Of a total of thirty dropped in combat, only seven hit their targets, a disappointing 23 percent success rate.)

Missions by the three groups against bridges on March 30 encountered light MiG opposition, but even in small numbers the MiGs took a toll. The B-29s were up again attacking bridges near Sinuiju and Uiju on April 7; only one MiG got through the F-84 screen, but it brought down one of the bombers. On April 12, Bomber Command made a maximum effort against the north railroad bridge at Sinuiju. For this mission, twenty-four B-29s were scheduled from Yokota and twenty-four from Kadena. Loaded mainly with 2,000-pound general-purpose bombs and one *Tarzon* guided weapon, all but two of the bombers took off. One plane aborted the mission and two failed to reach rendezvous or found another target. In all, thirty-nine B-29s struck the primary target. Over seventy MiGs attacked, and enemy flak was heavy. The F-84s were unable to cover the overly extended formations, and even the F-86s on top cover were unable to intervene in time. The lead bomber, *Dragon Lady*, took a MiG cannon shell through the cockpit that killed its bombardier and mortally wounded the aircraft commander. In the finest traditions of the air war over Germany and Japan, the copilot and radar operator took over, pressed on, and bombed the target. MiGs swarmed over the formation, and the Superfortress gunners fought back skillfully and savagely. One gunner, Sgt. Lyle Patterson, picked up a rapidly closing MiG "very close" to his bomber. "I put the center dot of my sight right on his cockpit," he recalled later. "My tracers appeared to be hitting exactly where I wanted them to. What happened after that was spectacular. The MiG started tumbling tail over nose." One damaged Superfort of the 307th BG tried to make it to Suwon airfield, near Seoul, but crashed before getting there; most of the crew bailed out. A B-29 of the 19th BG bombing a secondary target ditched after sustaining heavy damage, and one of the bombers hitting Sinuiju was lost. Seven bombers were damaged, two having to land in Korea before returning to base. Much of the bombing on the primary target was good, but the bridge still stood.

With three aircraft lost, Stratemeyer stopped further deep B-29 missions and also concluded that the F-84s were unequal to the task of engaging the MiGs. Flak also took its toll, not so much because many bombers were lost to it, but because it forced them to fly higher, reducing their bombing accuracy and adding wear and tear to the engines. Still, the task of winning air superiority was not to be abandoned. Jamming Communist radar and communications

systems was a complex issue, not easily resolved. “Ferrets” and listening posts gathered much useful intelligence monitoring Communist very-high frequency (VHF) and GCI traffic. Jamming EW radars could give away SAC’s capabilities in the electronic combat field that might be utilized should a more general war with the Soviet Union break out. For the latter reason, FEAF rejected out of hand a general anti-EW radar jamming campaign. Nevertheless, the MiG and anti-aircraft threat was such that, on April 17, FEAF authorized free use of spot jamming of enemy radars, just as Bomber Command was launching an offensive against airfields in North Korea that continued until April 23. The Communists had just begun their ground offensive the previous day, and, according to Briggs’s scheme, this seemed the optimum time to hit them. The result was that at this crucial moment the Communists found themselves fighting without air support. The result of such an imbalance of air power over the battlefield was predictable. Within two months, the U.N. succeeded in pushing north of the 38th parallel. That the U.N. succeeded in doing so was a tribute to the success of American fighter and bomber pilots—the former for shooting the Communist air force out of the air, and the latter for bombing its bases—at heavy cost—thus denying it the ability to operate freely in the southern part of North Korea.

This recovery meant that the U.N.’s reconsidered objective had been met and South Korea was clear of Communist forces. But the prolonged discussion of the goals and methods of a limited war had come to a head. MacArthur had often objected to the limits placed on him and had become increasingly open about his disagreement with U.S. policy. He continued to agitate for an expansion of goals and more vigorous efforts to achieve them. MacArthur’s public criticism of established policy led Truman to relieve him of the U.N. and U.S. command on April 11. Truman named Ridgway to succeed MacArthur. Given the acceptance of limits by active allies of the United States, no other course was open to the President, but the public outpouring of support for the relieved general at home highlighted the frustration many Americans felt at accepting what appeared to many as a policy doomed to produce little more than stalemate.

In relieving MacArthur, Truman reaffirmed the policy of limiting air action over the Yalu. The risk of general war with the Soviet Union still seemed too great. Nor were there targets in Korea that justified the use of atomic weapons. The era of nuclear plenty had not yet begun, and SAC needed most of the weapons, should a global war begin, against the industrial power of the Soviet Union itself, where most of the arms used in Korea were manufactured. This was the true industrial heartland of the North Korean and Chinese power in Korea. Nor could more strategic bombers be spared for the Far East. The 22d and 92d BGs were not going back to Korea. In June 1951, the 92d began to convert to B-36s, and the 22d was soon scheduled to receive the B-47 jets, although this conversion was delayed until 1953.

Regardless that U.S. nuclear power could serve as a possible deterrent to an extension of the war by the Communist bloc, steps were taken to improve



Gen. Matthew B. Ridgway, CINC-UNC, *left*, and Lt. Gen. Earle E. Partridge, commanding Fifth Air Force, May 1951. Ridgway succeeded General MacArthur when the latter was relieved on April 11, 1951.

strategic readiness in the Far East. Should it become necessary to use atomic weapons in the theater, LeMay had to consider the necessary command arrangements. In May, Lt. Gen. Thomas S. Power, LeMay's deputy, signed an agreement with GHQ to set up a SAC Command Element staffed from Fifteenth Air Force in the Far East. This element, to be called SAC X-Ray, would coordinate nuclear planning with FEC and, in the event of general war, would command SAC forces in the region. If that happened, Bomber Command would transfer to SAC and come under X-Ray. In the meantime, SAC X-Ray would actually be at Headquarters FEAF Bomber Command, whose commander would coordinate local planning. During the summer, SAC units under the direction of SAC X-Ray conducted B-50 missions over North Korea to test procedures for atomic operations. These tests demonstrated that existing procedures needed tightening but such operations were feasible. RB-45s reconnoitered potential Chinese targets as well. Nevertheless, LeMay remained unwilling to support an expenditure of scarce weapons in a local theater, and the Truman administration, for its part, saw no reason to consider the use of atomic weapons in Korea.

Soon after MacArthur's departure, his air commander was to follow him back to the continental United States. On May 20, Stratemeyer suffered a heart attack and had to return home. Partridge, whom Vandenberg had already selected to head Air Research and Development Command replaced him. Accordingly, on June 10, Weyland assumed command of FEAF, arriving with three-star rank from the staff of Tactical Air Command. From his previous service in FEAF in the early months of the war, Weyland already had some grasp of Korean problems. At the same time, Briggs rotated home, and Brig. Gen. Robert H. Terrill took over Bomber Command. The UNC continued to hope

President Harry S Truman and Gen. Curtis E. LeMay, commanding SAC, April 16, 1952. LeMay placed the highest priority on preserving SAC's ability to deliver a nuclear strike against the Soviet Union. This dovetailed with Truman's determination to limit the war in Korea.



that the Communists could be pushed farther back. Until now, with the effort the B-29s had put into the air battle, their contribution to Interdiction Campaign Number 4 had been limited. On May 30, FEAF had taken up a new plan, called Strangle. Taking its name from the interdiction campaign in Italy in 1944, this operation was intended to undermine the Communist support system with an eye to a potential U.N. offensive.

But the B-29s were still involved in air superiority targeting as well as in interdiction, a task made more deadly by the constant MiG and growing anti-

Lt. Gen. Otto P. Weyland, FEAF commander, *right*, with Thomas K. Finletter, Secretary of the Air Force, Japan, June 1951. Weyland took command of FEAF in May after Stratemeyer's heart attack. Finletter played a role in resolving the controversy over the morale problems among B-29 crew trainees.



aircraft threat. Even beyond MiG Alley, enemy flak could be deadly; on May 7, a B-29 of the 98th BG exploded during an attack on the rail yards at P'yongyang. During May and June 1951, the Communists resumed their effort to activate airfields, and they managed some harassing air attacks, including a raid on Suwon and a series of sporadic night attacks by light airplanes (including open-cockpit Polikarpov Po-2 biplanes) dubbed "Bedcheck Charlies" by the Americans. An unusual Communist urban renewal effort produced 7,000 feet of right-of-way on a street in the city of P'yongyang. On May 28, B-29s of the 19th and 307th BGs cratered this runway, the P'yongyang Downtown Airfield, and another one 25 miles to the northwest. On May 31 and June 1, several B-29s on interdiction missions came under attack. One B-29 was lost on June 1, but Superfortress gunners and F-86 pilots racked up a healthy score of claims. Resuming airfield attacks on June 17, Bomber Command joined with fighter-bombers and B-26s of Fifth Air Force. Soon air-to-air battles resumed in earnest, and the Superfortresses proved valuable MiG-bait without sustaining serious losses. More than bait, the B-29s hit P'yongyang Downtown on July 3 and the Sinanju airfield on July 9. When truce talks began on July 10, the Communists were near the end of their major effort to upset the unfavorable balance of strength in the air over the battlefield.

But the situation was not so sanguine in MiG Alley, in the northwest section of Communist North Korea, where Bomber Command was headed. In July 1951, General Power visited the theater and committed SAC to provide a sharp increase in the number of trained radio-ECM operators in Bomber Command. In turn, FEAFF started improvements to the ECM operator's crew posi-

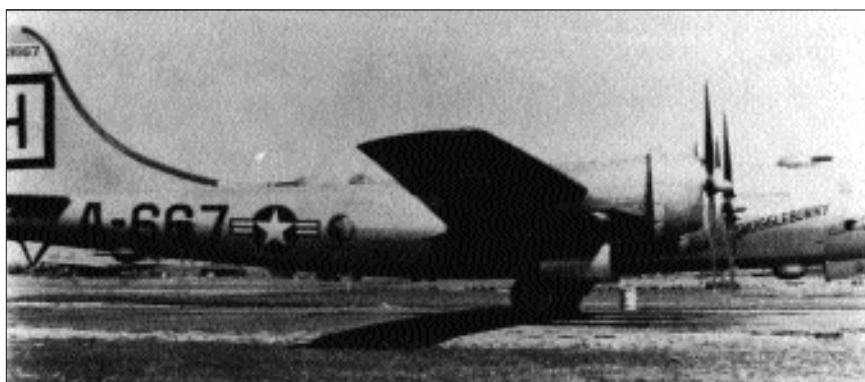


B-29s of the 307th Bombardment Group taxi out for takeoff from Kadana AB, Okinawa, April 1951.

tion. The 55th Strategic Reconnaissance Wing at Ramey AFB, Puerto Rico, sent RB-50Gs, whose “Crows” could help FEAF reconnoiter hostile radars. With this expansion of reconnaissance technical support, the enemy electronic order of battle could now be evaluated, but with difficulty: so numerous now were North Korean radars that, as one report noted, “ECM operators in the ferret aircraft could not hope to Direction-Find them all.” With restrictions on jamming, the B-29s would still run into heavy opposition in the autumn of 1951. The bomber formations were just too small and lacked sufficient equipment and trained operators to achieve thorough jamming, which risked exposing their position in the process. Battling with a choice between having overworked or undertrained operators, Bomber Command continued to fly missions.

SAC’s contribution was not limited to furnishing experienced commanders and crew replacements for FEAF. A SAC crew from the 43d Air Refueling Squadron flew a KB-29M tanker to Yokota in June 1951 for tests in the combat zone. Further tankers followed: a KB-29M refueled four F-80s in flight on July 6, and a P model tanker refueled a RB-45C over enemy territory on July 14. In the autumn of 1951, Detachment 2 of the 91st Strategic Reconnaissance Squadron was formed to operate the KB-29s in the Korean theater. A tanker of Detachment 2 refueled F-84s over Wonsan on November 4, 1951, while they were covering a rescue of a FEAF aircrew member downed in the water. The tankers extended the reach of Fifth Air Force, allowing more coverage of North Korea. Air refueling would be far from the norm for Korean operations, but these tests would point the way for the routine use of air refueling by USAF forces in the years—and wars—after Korea.

In the jockeying between the U.N. and the Communists that led to truce talks, first at Kaesong beginning on July 10, 1951, and then at nearby Panmunjom beginning on October 25, an intense and continuing air battle devel-



“Snugglebunny,” a B-29 of the 98th Bombardment Group, having flown more than 140 combat missions in World War II and Korea, was sent home for depot overhaul in July 1951.

oped over the north between the F-86s and the MiGs. On September 25, a reconnaissance pilot observed a new airfield under construction near Saamchan. Intelligence soon established that two other fields, Taechon and Namsi, were approaching readiness near the southern reaches of MiG Alley. Accordingly, Bomber Command assumed the task of hitting these fields hard before they became operational. Brig. Gen. Joe W. Kelly, who had taken over Bomber Command on September 30, concluded that the method that would produce the best results in MiG Alley at least cost was precision night SHORAN bombing. The use of SHORAN (for *SH*ort-*R*ange Navigation) had shown promise after some false starts in Fifth Air Force early in the war. Two radar beacon stations operated by the 1st SHORAN Beacon Unit would enable an airplane mounting an APN-3 transceiver to fix its position by triangulation. Fifth Air Force was now supporting B-26 SHORAN missions, and the 98th BG flew a test mission on June 1. A few Superfortresses had now been fitted with the transceivers, and the 3d BW at Iwakuni, a B-26 unit, was training some Bomber Command operators.

Bombing with SHORAN was not without drawbacks. True, the shortage of transceivers could be overcome somewhat by having small bomber formations attack targets identified for them by a SHORAN-equipped lead plane, but the accuracy of available maps was often too poor to provide the degree of pre-



Dropping bombs through cloud cover on a radar bombing mission over North Korea, this B-29 is from the 19th Bombardment Group at Kadena.

cision required for night bombing. The transceiver and the operator's station would require some shifting of ECM equipment. The amount of electric power required by the transceiver itself drained the ECM and interfered with the jammers. Turning off the jammers during a SHORAN bomb run could solve this problem, but this was a particularly vulnerable moment to expose the aircraft to enemy radar. To add to this, SHORAN imposed limits on bombing altitude as well as a predictable route to the target, limitations that caused considerable problems once Bomber Command shifted its main effort into night attacks.

Beginning on August 18, FEAF reemphasized the railroad objectives of Strangle with what airmen soon preferred to call the Rail Interdiction Program. Bomber Command's role was somewhat impeded because of a typhoon that hit Okinawa on August 17. But the B-29s kept flying into the autumn. The 307th BG ran a mission on October 13 against Saamchan, and further missions followed over the next few nights. The result only confirmed the need for heavier daylight operations. On October 19, 21, and 22, Bomber Command struck the airfields by day. Heavy escort was laid on, and some bomber units diverted to secondary targets when they failed to rendezvous. But other units got through to bomb with good effect. The trouble was that the MiGs started to come up after the first day. On October 22, one bomber was hit just after bombs-away against Taechon airfield. It crashed and burned, but its crew managed to parachute to safety.

On October 23, eight B-29s of the 307th BG made rendezvous with their



Bombs from FEAF B-29s strike the rail yard at Rashin, North Korea. Near the Korean boundary with the Soviet Union, Rashin was always a politically sensitive target, but FEAF went after it on August 25, 1951.

escorts for an attack on Namsi airfield. Approaching the target, the bombers encountered some fifty MiGs, which nearly overwhelmed the F-84 escort. The lead plane was mortally damaged by MiGs, though its aircraft commander, Capt. Thomas L. Shields, managed to bomb on-target before heading for the coast. His valiant efforts enabled his crew to abandon the stricken aircraft, but at the cost of his own life. In a twenty-minute encounter, two other Superfortresses were lost, and most of the remaining aircraft suffered serious damage and dead or wounded crew. Despite these losses—38 percent of the force dispatched—Bomber Command pressed on. The next day, the B-29s of the 98th BG hit a railway bridge at Sunchon and were pursued as far as Wonsan by MiGs. One B-29 went down into Wonsan harbor, but eight crewmembers were rescued. Two more missions came on October 27 and 28 against bridges at Sinanju and Sonchon. On October 27, one bomber sustained serious damage, but the next day the B-29s met no opposition. Still, during October, Bomber Command lost five aircraft and suffered severe damage, with fifty-five crewmen dead or missing and twelve wounded.

Meanwhile, on October 28, the same day as the lucky Sonchon mission, FEAF held a commanders' conference at Itazuke AB. The situation was serious. The Communists were expanding their base structure, and the MiGs had never shown such aggressive handling. A new improved type of MiG-15, known as the MiG-15bis, was entering combat. Headquarters USAF was already accelerating the deployment of another wing of F-86s in reply. The air battle had to continue. Kelly announced that he would be prepared to provide five to seven SHORAN sorties nightly after he had built up his bomber's ability to fly the missions. Weyland agreed at once that installation in the B-29s of the necessary transceivers, borrowed from Fifth Air Force, should proceed. At the same time, RB-29s ceased flying reconnaissance missions in MiG Alley altogether. When Vandenberg visited Korea in November, he had no other choice but to endorse the decision to resort to night bombing.

The testimonial to Communist air power was a shock. LeMay was concerned at the implication of Kelly's plan for SAC, should the air offensive be launched against the Soviets. Not only had the Communists demonstrated a daunting capacity to shoot down bombers; the world had seen a U.S. air attack stopped. It was, in its own way, as great a shock as had Schweinfurt been in October 1943: the kind of event that radically transformed an air campaign, the kind of event that dramatically highlighted the vulnerability of outclassed old-technology bombers in the face of new, high-technology fighters. In a statement to the press on his return to Washington, Vandenberg declared that "Almost overnight, Communist China has become one of the major air powers of the world." The United States faced a tough decision, and it was some time before FEAF began to use the electronic techniques that gave the bombers an advantage but that also revealed critical technologies. Bomber Command's night offensive not only had to hit targets; it had to prove the effectiveness of the strategic bomber itself.

FIRE IN THE NIGHT: BOMBING UNDER THE NOT-SO-IMPENETRABLE CLOAK OF DARKNESS

Since the failure of the Communist offensive in the late spring of 1951, the front on the ground had stabilized. The air war now appeared to be stalemated as well. Interdiction would probably halt another major Communist offensive, but so long as FEAF's strength remained static, enemy efforts to repair the routes kept pace with the bombing. In the absence of the supply demands engendered by a major Communist offensive, what small amount of supplies continued to get through was sufficient to meet the demands of Communist forces fighting along a basically stalemated front. The good news as the end of 1951 approached was that the switch to night bombing tactics seemed to work. By November 4, 1951, Bomber Command was able to begin intensified night attacks on the North Korean airfields, although the learning curve and time required to install SHORAN transceivers proved limiting to its efforts. In fact, the switch to a night air war had caught the Communists by surprise, and they needed time to develop a response—a situation that, blessedly, enabled the B-29s to strike their targets in relative safety for the next several months. Random losses still occurred—on November 8, a B-29 on a night leaflet mission was lost to flak, and another was lost to MiGs later in the month—but by December, the U.N. had largely neutralized the airfields and, with that, seemingly the MiG threat as well.

In reality, the night battle was to continue for a year and a half, and the demands of striking crucial transportation targets soon brought Bomber Command into heavily MiG-defended areas until the end of the war in July 1953. In December 1951, the Communists began to resort to a technique that the Germans had called *helle Nachtjagd* (illuminated nightfighting). Radars detected the incoming bombers and directed searchlights onto them; fighters would then attack the illuminated bombers. By the end of the month, several B-29s had been hit, although none had been prevented from returning home. For its part, enemy flak effectively forced the B-29s to operate at higher altitudes, reducing bombing accuracy. The two sides continued to develop their challenge-and-response tactics, and over the next year, Bomber Command crews learned to master both SHORAN and radar jamming. Night operations in Korea would prove valuable because of the emphasis in SAC on night penetration of enemy air space in the atomic offensive. Brig. Gen. William P. Fisher, the commander of FEAF Bomber Command (he had assumed command on October 5, 1952) considered the biggest weakness of the aircrews he received from SAC to be their lack of SHORAN training.

But, as mentioned previously, SHORAN tactics themselves posed difficulties. Under this scheme, a B-29 bomber stream typically approached a target flying along a ground track arc at an altitude of 25,000 feet and a speed of about 265 miles per hour. The formation would drop its bombs when it inter-

cepted an intersecting signal. Experience monitoring B-29 flight paths soon taught the North Korean air defenders where suitable SHORAN arcs lay, enabling them to concentrate their antiaircraft and fighter forces for greatest effect. Then, of course, the heavy power requirements of the SHORAN system limited the amount of power that could be furnished for airborne jammers. Further, the jamming equipment itself was all of Second World War vintage (it would not be until May 1953 that FEAF Bomber Command received its first postwar-developed ECM system, the AN/APT-9). In the absence of better jamming, FEAF determined to rely upon the widespread use of radar-spoofing metallic foil chaff (called *Window*, a name dating to the Second World War); tight formation flying to prevent multiple MiGs from targeting vulnerable airplanes; painting the underside of its bombers black; and use of friendly Marine and USAF nightfighters to undertake Yalu barrier and bomber-stream patrols against MiGs. Mission planners resorted to every trick they knew, avoiding moonlit nights, scheduling missions when obscuring cloud cover could block searchlight beams, and picking altitudes depending upon meteorological conditions so as to minimize the formation of telltale contrails.

After several weeks Bomber Command recognized that the Communists clearly were not going to concede control of the night sky to FEAF. Therefore, in December 1951, as a precaution, the 307th BG began escorting B-29 bomber formations with a B-29 outfitted exclusively for jamming, and over time, formations of jammer escorts grew. Fifth Air Force B-26s also attacked the searchlights themselves, attempting to suppress enemy air defenses in a fashion anticipating the use of SAM-killing Wild Weasels in later wars. The shift of B-29 operations to night attacks did not necessarily reduce the scale of the Superfortress effort, and twelve to fifteen individual sorties continued to be flown each night. But this effort, under the circumstances, was insufficient to meet all the continuing demands made upon the Superfortress force. Though it was true that bombing accuracy improved as B-29 crews gained proficiency with SHORAN (and FEAF targeting became more sophisticated), increases in accuracy did not adequately offset Communist persistence in repairing line cuts and broken bridges which kept at least some of their supplies in transit. Further, SHORAN training flights absorbed sorties that otherwise could have gone to bombing enemy targets. In sum, small as it was, FEAF Bomber Command could not hit all the targets as frequently as was needed to maintain a thorough interdiction campaign and to support the frontline troops and to satisfy its other missions.

Given the demands on the force, planners sought ways to imaginatively employ the Superfortresses for best effect. Beginning on January 26, 1952, FEAF started to experiment with repeated attacks on a key choke point at Wadong, where the cross-country rail line from Sinanju in the west to Kowon and Wonsan on the east coast passed through a defile, and where a main highway crossed the line. For weeks, B-29s and B-26s dropped huge loads of bombs, about 1,000 tons in all, on this defile, with the result that the line was closed for twelve days. The enemy kept the line open even if a good deal of



Crewmen of the 6161st Air Base Wing at Yokota are shown here refueling a B-29 of the 98th Bombardment Group in February 1952.

time was lost. Analysts concluded that the B-29s were better used against bridges, and important ones at that, since Bomber Command now had more bridges on the list than it could handle. Planners now turned to Operation Saturate, in which FEAF would concentrate its effort on key vulnerable points in the transportation system. At the end of March, the B-29s achieved some success in their assignments by cutting bridges at P'yongyang, Sinanju, and Sinhung-nu.

The B-29's increasing use of night to cloak their attacks was matched by an equally intensive Communist effort to strengthen their night air defenses. On the moonlit night of June 10, 1952, eleven Superfortresses set out to bomb a railroad bridge complex at Kwaksan. Radar-directed searchlights "coned" ten of the bombers, and as many as twelve MiGs, operating in conjunction with an airborne controller, savaged the formation. Riddled with cannon shells, one Superfortress exploded, another disappeared into oblivion, and a third, severely damaged, had to make an emergency landing at Kimpo. Admittedly, the formation had not used countermeasures to any great degree; none of the planes had carried chaff, and only the eleventh had employed frequency jamming (which enabled it to avoid being illuminated). This experience, which shook FEAF Bomber Command's confidence in its ability to operate at night, resulted in quick adaptation of new countermeasures. On June 16, Task Force 77 successfully experimented with chaff drops during a raid on Kowon; the long strands of radar-spoofing rope chaff completely confused gunlaying radars and resulted in flak bursting as much as a mile off in deflection and thousands of feet in altitude.

Chaff was clearly in FEAF's future as well. But FEAF investigated other

countermeasures as well, including low-level approaches using terrain-masking against radars, communications jamming directed against both VHF transmissions used by Communist controllers and GCI transmissions directing MiGs onto their targets, ECM jamming against EW and GCI radars, and use of night fighters to protect and insulate the bomber stream from MiG attacks. As it had the year before, FEAF rejected a generalized VHF-GCI communications jamming program because of the intelligence value of listening to Communist transmissions, as well as EW radar jamming because of its potential to give Soviet air defense planners insight into SAC's electronic warfare capabilities. It did approve broader spot-jamming (except for S band frequencies, again for fear of compromising SAC's ECM strengths), and use of chaff. On September 12, 1952, Bomber Command aircraft began dropping its own chaff bundles. These were remarkably effective, and bomber crews observed searchlight beams wandering across the sky picking up chaff bundles in midair.

Kwaksan coincided with growing concern over the direction of the U.N.'s strategic air effort. Given the steady level of combat at the front, with no attempt by either side at a supply-gobbling major offensive, interdiction had at best insured stalemate on the front. The truce talks at Panmunjom were stalemated over the justifiable refusal of the U.N. to forcibly return North Korean and Chinese prisoners that did not wish to return to Communist-ruled homelands. In April 1952, a study prepared for Brig. Gen. Jacob E. Smart, FEAF's imaginative operations chief, had proposed ways in which the U.N. could use air power to put pressure on the Communists to end the war. The focus of the study was to target electric power stations in North Korea. In this endeavor, using fighter-bomber strikes, Fifth Air Force had taken the lead. In fact, disrupting electric power offered potential leverage over the U.N.'s communist opponents, for while not risking a single airplane north of the Yalu, FEAF could cut the supply of power to industry in Manchuria, thus indirectly attacking Communist China itself, for Manchurian industrial sites drew their power from North Korean generator stations.

The FEAF Target Committee had produced a new operational policy for Fifth Air Force and Bomber Command in June; this new directive, issued on July 10, set three priorities. First, U.N. air superiority in Korea was to be maintained. Second, selected targets were to be destroyed, with the objective of imposing maximum cost on the enemy. Third, operations were to be aimed at limiting the enemy threat to U.N. ground forces. Fifth Air Force was to lead in the air superiority role and in support of the frontline forces. In the destruction role, Fifth Air Force would allocate effort and would itself concentrate on fleeting targets. Bomber Command was to focus on targets like communications centers, industrial facilities, bridges, and supply dumps. On the basis of this directive, Operation Pressure Pump was to begin on July 11.

On the first night of the operation, Bomber Command launched fifty-four aircraft against eight supply, factory, and storage targets in the P'yongyang area, simultaneous with massive attacks by Fifth Air Force aircraft over Korea as well. Over the weeks that followed, FEAF concentrated on electric power

Capt. Reuben T. Long, Jr., *right*, bombardier of "Sic 'em," a B-29 of the 98th Bombardment Group at Yokota, discusses with his radarman, 1st Lt. Glenn T. MacClure, *left*, the bomb carrying the 252,066,000th pound of high explosives to be dropped by Bomber Command over Korea.



and industrial targets. On July 19 and 21, the Superfortresses hit one of the power plants at Chosin, in the reservoir area famous from the great winter battles of 1950. On the night of July 30, Bomber Command put sixty-three B-29s—the largest single bomber operation of the war—over a previously unrecognized industrial target near the Yalu, the Oriental Light Metals Company outside Sinuiju. All planes bombed by SHORAN with splendid results. Post-strike photographs of the plant showed 90 percent destruction. This massive attack on what was apparently an unexpected target may have minimized the opposition. In addition, Brig. Gen. Wiley D. Ganey had made a point of utilizing favorable weather conditions, bombing through thin clouds that confused the searchlights. Fighter passes did occur, but they were ineffective.

The B-29s continued to hit both familiar targets and the electrical facilities. From time to time, Bomber Command staged a maximum effort to enhance surprise and achieve a heavier concentration. Munitions works at Nakwon alternated with targets at P'yongyang and troop billeting areas. On September 3, the bombers were to hit part of the hydroelectric complex at Sui-ho. (Using water from the Sui-ho Reservoir, this power plant was one of the world's largest, ranking as a major producer of electricity for Manchurian industry.) However, the airborne bomber commander found no protective cloud cover and diverted the mission to Chosin. In another maximum effort on September 12, twenty-nine bombers hit the Sui-ho plant, risking the attack even though the cloud cover again failed to materialize. Despite extensive jamming, the Communists put up extremely heavy and effective flak. Some B-29s came into searchlight beams, and a MiG shot down one bomber of the 307th BW. Other planes sustained flak damage, but 29 aircraft accurately dropped 2,000-pound bombs, severely damaging the plant. Coming after the Kwaksan calamity, Bomber Command was relieved that more Superfortresses had not been lost: missions, it seemed, could continue in the teeth of MiG and flak threat, even in the Yalu sanctuary area.



The Nitrogen Fertilizer Plant in Hunghnam, Korea, was actually a munitions plant and a key target when Bomber Command struck it late in 1952.

With “air pressure” the goal, FEAF continued the pace. In late September, the B-29s made some unusual day attacks along the east coast. Intensified medium bomber attacks on supply dumps and battlefield interdiction targets followed in October. One or two sorties per night hit targets near the front line under strict radar control. Incendiary missions hit supply centers beginning on November 13. But enemy resistance appeared to be increasing. Reports of two Soviet night-fighter squadrons on the Yalu indicated tough times ahead.

MiG CRISIS: NIGHT DUELS OVER THE YALU

Confronted with this intelligence, Bomber Command took an additional important step to defend the B-29s: jet-propelled night fighters began flying barrier patrols and escort into the planned target areas. There were two principal American jet nightfighters in Korea: The Air Force’s F-94B Starfires flown by the 319th Fighter-Interceptor Squadron, and the U.S. Marine Corps’ F3D-2 Skyknights of Marine nightfighter squadron VMF(N)-513, the “*Flying Nightmares*.” These two types had replaced, respectively, the Air Force’s North American F-82G Twin Mustang (which had the honor of having scored the first American air-to-air victory in the war), and the Marines’ twin-engine Grumman F7F-3N Tigercat. Both of these were powerful, piston-engine propeller-driven airplanes, representing the epitome of propeller fighter design. While excellent, neither had the performance to stave off the MiG, though they otherwise did excellent service.

The Starfire and the Skyknight were different cases. Products of two of the greatest American aircraft designers, Lockheed's Clarence "Kelly" Johnson and Douglas's Ed Heinemann, the Starfire and Skyknight both had two-man crews, consisting of a pilot and a radar intercept operator. But otherwise, each differed greatly. The slender F-94 was an outgrowth of the T-33 trainer, itself a development of the F-80C fighter. The portly Skyknight (affectionately dubbed the "Blue Whale") was a blunter, bigger, and heavier airplane, whose generous lines belied refined aerodynamic design dating to one of the first transonic research airplanes, the Douglas D-558-1 Skystreak. The F-94's armament consisted of four .50 caliber machine guns, but the Skyknight featured four more powerful 20 mm cannon. The F-94 had a single centrifugal flow jet engine with a thrust-enhancing afterburner (in fact, it was the first afterburning jet fighter to see operational service), whereas the Skyknight had two smaller non-afterburning axial-flow jet engines. Each differed significantly in its radar capabilities. The F-94 featured a sophisticated Hughes fire control system (the E-1) considered so sensitive that, for a time, it was restricted to operating only over South Korea, lest the secrets of its system be given up to the Soviets should one be shot down. The Skyknight had no less than three radars, consisting of a powerful AN/APS-21 20-mile-range search radar, a smaller AN/APG-26 gun-aiming radar with a 2 ¼ mile lock-on range, and a 10-mile range AN/APS-28 tail warning radar as well, the latter to detect any fighter attempting to close from the rear and shoot it down. With the F-94 temporarily restricted from operating over the North—it would do good work later—the Superfortresses were fortunate to be able to call upon the Skyknight for protection.

The state of the enemy was a constant puzzle to the U.N.'s airmen. Intelligence estimates credited Communist forces with a number of different aircraft types, including some they did not possess. But a variety of Russian-built fighters were known to be in service along the Yalu, including MiG-15s, Lavochkin La-5, -7, and -9 fighters (roughly equivalent to the German Focke-Wulf 190 of the Second World War), and the Yak-9. The MiGs—thought to come from the two Soviet nightfighter squadrons mentioned previously—typically flew in standing patrols of seven or eight airborne between the Ch'ongch'on and Yalu rivers. The MiGs seemingly lacked airborne radars of their own, their pilots instead relying on cuing from GCI radars on the ground, assisted, perhaps, by airborne interception controllers in slower propeller-driven planes. Though ferrets searched diligently for evidence of an airborne radar signal from the MiGs, they never found convincing evidence of radar-equipped MiGs (though one signal detected possibly could have come from a Communist airborne radar set). Thus, whether they simply did not have one or had the same fear of compromising their capabilities as the United States is not certain. Interestingly, by this point in the Korean war, the Soviets had already deployed a radar-equipped dedicated all-weather fighter variant of the MiG-15, the MiG-15bisP. Armed with two 23 mm cannon, the MiG-15bisP mounted a S band fixed-scan radar (known as *Izumrud*—"Emerald") having a



Bombers of the 19th Bombardment Group at Kadena are shown here preparing to take off on a night mission over Korea in September 1952.

nearly eight-mile range. But again, there is no evidence the MiG-15bisP ever deployed to Korea.

VMF(N)-513, based at K-8 (Kunsan), had begun a combat evaluation over the North in August, shooting down a single-engine jet fighter identified as a Yak-15 (an early Soviet straight-wing design) on November 3. On November 8, the squadron destroyed its first MiG. Encouraged, General Fisher wrote that the B-29s were now encountering little opposition. Spot jamming could normally break both flak and searchlight radar lock-on; enemy night fighters were still operating visually, and B-29 gunners were rarely surprised. "As a matter of fact," he concluded, "we can fly anywhere in North Korea under any weather conditions with little concern for flak except on the Yalu River." Of vastly more concern to him was the lack of significant targets. As Fisher pointed out,

the target problem over here is getting extremely difficult. We are generally operating now . . . with strike forces of about six airplanes. Even these [minor] targets are becoming scarcer and more dispersed all the time. In two and one-half years of this War everything of any size and importance has long since been destroyed, and we are now picking in the rubble. Of necessity, because of our complete air domination, the "commies" have learned to disperse and dig in. Their rail situation is almost impossible, and I feel ineffective; their

supply requirements are low in this stabilized situation. They move their supplies by night in trucks and hide them in caves, tunnels, revetments, etc. by day. They have learned never to concentrate. The result of all this is that both the Fifth Air Force and ourselves are hard put to get at them effectively.

But the MiGs struck back and losses continued, though at lower levels than prior to introduction of the nightfighters. On November 18, a B-29 from the 98th BW went down under MiG attack after bombing a supply target at Sonchon. The crew observed flares being dropped from an aircraft above them, and searchlights apparently guided by the flares soon illuminated the B-29, which then came under MiG attack. Badly damaged, it limped to the rescue station on Ch'o-do Island, where the crew bailed out. Bomber Command kept going to Uiju and Sinuiju, and B-29s went after a metalworks at Choak-tong near the Yalu on December 30. The bombers streamed contrails in the moonlight, and guided by a control plane, MiGs attacked the formation. They shot down one B-29 (an attack witnessed by a Skyknight too far away to intervene) and damaged two others, which had to land at Suwon. On January 10, 1953, a bomber of the 307th BW found itself illuminated over the railroad yard at Anju; seconds later it was shot down. A RB-29 was lost on a leaflet-dropping mission on the night of January 12. MiGs spotted a B-29 of the 19th BG in moonlight on January 28 over Kimpodong and shot it down, and two nights later MiGs used moonlight to hit another Superfortress over the Unjong-ni supply center, forcing it to make an emergency landing.

Meanwhile, twisting and turning amid darkness and clouds, MiGs dueled with the Skyknights, now joined by F-94s (cleared at last to fly in northern skies) high over Korea's mist-shrouded mountains. In January, three MiGs fell before the guns of the *Flying Nightmares*, and a La-9 to a F-94, with another F-94 damaging a Yak-9. But that same month, FEAF Bomber Command lost four B-29s to marauding MiGs. This led General Fisher, who had been so hopeful in November, to now write, "If the Communists ever crack that last link and get an all-weather capability of pressing an accurate firing attack, the B-29 business is really going to get rough." Fortunately such did not occur. MiGs, Skyknights, and F-94s continued to fight it out high over the Yalu, the MiGs adopting sophisticated tactics to bait and lure American nightfighters to their doom. One MiG fell to an F-94 on June 12, but the same victorious crew disappeared less than a week later, probably to a MiG trap. A small Navy detachment joined the Marines, and quickly lost a Skyknight and its crew to such a trap in early July; two days after this loss, a Marine Skyknight and its crew disappeared in the same area. But no more Superfortresses fell before Communist fighter pilots. January 1953 had seen the last of that.

Undoubtedly the aggressive use of friendly nightfighters pressured MiG pilots—hitherto free to concentrate on shooting down sitting-duck targets with defensive gun systems sorely taxed by the MiGs' speed and rate of closure—to pay more attention to what was around them, easing pressure on the harassed

bomber crews. But beyond the nightfighters, General Fisher won Weyland's support for a more vigorous application of known measures for bomber security in MiG Alley. From then on, no missions were to go into the area during a full moon or in predicted fair weather. Altitudes would be varied as much as possible, given the needs of SHORAN flying and the need to prevent the formation of contrails. Missions were to be timed as irregularly as possible. As spring came and the weather warmed, the formation of contrails occurred at higher altitudes and more cloudy weather helped fend off the searchlights. Weyland still had to sustain flagging crew morale, but the offensive continued. On February 15, the bombers hit a communications center near P'yongyang. That night, Radio P'yongyang went off the air, and it had transmission trouble for some time thereafter. Not illogically, Bomber Command assumed the attack and the radio station's problems were connected. Meanwhile, the B-29s continued to push into MiG Alley. In March, missions went against the metalworks at Choak-tong, an industrial target near Sinuiju, and bridges at the crucial bottleneck of Yongmi-dong. In April, the B-29s went after the bridges at Sinanju.

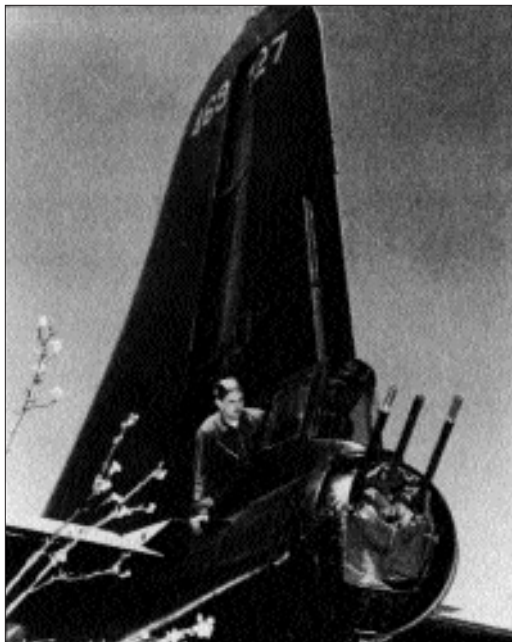
On May 28, 1952, Army Gen. Mark W. Clark had succeeded General Ridgeway as U.N. forces commander. At the end of the year, Clark addressed one of FEARF's problems with the command structure. He established a new Army headquarters for the Far East theater and reorganized UNC/FEC headquarters as a joint organization, composed of officers from all services and with senior-ranking Air Force officers in key positions. Effective January 1, 1953, this reorganization contributed greatly to raise the confidence of the Air Force in the overall conduct of the war. Soon after, a command change occurred at the highest level. On January 20, 1953, Dwight D. Eisenhower was inaugurated as President, elected in large measure as a result of public frustration over progress of the war in Korea. Initially, this occasioned no change in military operations; the air pressure campaign that FEARF was waging had long been planned. Eisenhower's "New Look" at the defense budget was a reminder of the continuing cost of a war that seemingly provided little in added value. But Stalin's death in March raised hopes that a political solution might be found. It made sense to continue the military pressure.

Eisenhower received a study in April outlining ways in which nuclear weapons might break the stalemate. The Joint Chiefs hesitantly agreed to plan for use of atomic weapons in the Far East. Then, during May, the administration made diplomatic signals to the Communist bloc warning of a possible expansion of the war. As Secretary of State John Foster Dulles advised Jawaharlal Nehru, the prime minister of India,

I [stated] that if the armistice negotiations collapsed, the United States would probably make a stronger rather than a lesser military exertion, and that this might well extend the area of conflict. (Note: I assumed this would be relayed [to the Chinese].)

Toward the end of spring, in fact, the logjam at Panmunjom began to show

Airman 2d Class Robert D. Gardner of the 98th Bombardment Group at Yokota is shown working on the triple .50 caliber tail armament of a B-29 in April 1953. Truce talks in Korea were beginning to show promise of a settlement, and the blossoms of spring may have suggested the promise of peace to the photographer.



signs of breaking as the B-29s continued bombing targets. On April 26, they supported an unusual special project, dropping masses of leaflets that offered a large reward to any Communist pilot who delivered a MiG-15 intact to U.N. lines. Although this produced no immediate result, the enemy appeared to limit MiG operations for some time to protect its pilots from temptation.

The air pressure campaign continued. In May, the B-29s hit a base complex at Yangsi, twelve miles from Sinuiju. Then, on May 21, they joined in a new offensive attacking the irrigation dams that sustained the North Korean rice crop, an attack that would threaten the food supply of the Communist armies. Fifth Air Force F-84s initiated this action on May 13, and on May 21, B-29s hit the dam at Kuwonga, north of P'yongyang. Failing to break the dam, Bomber Command waited until May 29 for another attempt, by which time the North Koreans had lowered the water level, reducing pressure on the structure and enabling it to survive another blow. True, the lake had to be drained to repair the dam, but it was soon back in use. Communist propaganda meanwhile denounced the attacks against food supplies. In June, FEAF again hit irrigation dams, but with similarly limited results.

Airfield attacks went to the head of target lists for both the Air Force and Navy later that month. Photoreconnaissance revealed that the Communists once again were building airfields. Although some heckling missions were flown and Bedcheck Charlie seemed likely to reappear, the more probable motive was to have bases for an expanded air force at the moment a cease-fire took effect. The B-29s joined in attacks on these fields in June and July, including Sinuiju, Uiju, and P'yongyang Main. The Communists launched a



B-29s of the 98th Bombardment Group at Yokota are shown preparing to take off on a night mission in May 1953. The perforated steel planking shown here was used for temporary paving of hardstands.

ground offensive in July designed to adjust the cease-fire line in their favor. Once again Superfortresses provided battlefield interdiction as well as attacks on bridges and other logistical targets. After a stall, truce talks resumed on April 26. The Communists agreed on June 4 to the U.N. position on voluntary repatriation of prisoners of war. Nearly two months were then spent hammering out the details of an armistice, jockeying for position, and bringing everyone, especially President Rhee of the ROK, into agreement on the terms. During these talks, Brig. Gen. Richard H. Carmichael assumed command of the B-29s in FEAF, effective June 15.

As negotiations continued, the B-29s did what they had been doing for the last three years: pounding Communist positions. Mass strikes by 19th, 98th, and 307th BW Superfortresses against Communist troop formations broke up an attempted assault on July 15 and disrupted troop buildups, deployments, and frontline troop and artillery positions on the 16th, 17th, and 18th. (On the latter mission, twenty B-29s dropped 16,000 antipersonnel bombs—800 per aircraft, at a total weight of 16,000 pounds—on Chinese frontline forces.) On the 26th, B-29s roamed over North Korea, bombing two airfields, hitting enemy frontline positions, flying reconnaissance, and dropping leaflets. The cease-fire agreement was finally signed on the morning of July 27, 1953, to become effective at 2201 hours local time. Bomber Command accordingly canceled its scheduled bombing mission for that night, a SHORAN strike against Uiju airfield. However, B-29s and RB-29s went ahead with leafletting mis-



On July 27, 1953, Gen. Mark W. Clark, CINCUNC, signed the cease-fire agreement with the communists at Panmunjom. This agreement ended hostilities in Korea. Shown to General Clark's left are Vice Adm. Robert J. Briscoe, Commander, Naval Forces, Far East, and Vice Adm. J. J. Clark, Commander, Seventh Fleet. U.S. Navy photo.

sions. Just shy of seven hours before the cease-fire, a 91st Reconnaissance Squadron RB-29 droned outbound from Korean airspace. FEAF Bomber Command's share of the Korean War was over. And, as well, so was the combat career of Boeing's remarkable Superfortress bomber.

EPILOGUE

In August and September 1953, the 92d BW, equipped with Convair B-36 bombers, made a mass flight across the Pacific to the Far East. The gigantic B-36, dubbed the Peacemaker but known more familiarly to maintenance and aircrews as the "magnesium overcast," visited bases in Japan, Okinawa, and Guam. This was Operation Big Stick, a pointed demonstration of rapidly deployable U.S. air power. For their part, the 19th, 98th, and 307th BWs remained in the theater until, finally, on June 18, 1954, FEAF Bomber Command was inactivated, and the 3d Air Division was activated at Guam as a unit of SAC. The units of Bomber Command now became part of SAC and returned to the continental United States in the following months. In 1954 the three wings returned to the continental United States and replaced their 300-mph

B-29s with another Boeing product, the 600-mph B-47 Stratojet. By the end of that year SAC had no B-29-type aircraft serving as bombers. Five years later, the B-36 would itself be retired for scrap, replaced by the eight-jet Boeing B-52 Stratofortress, destined to be the most potent symbol of American air power for the next half century and such a cultural icon that it would even grace the name of a popular rock band.

The decision by the Truman administration to limit the war in Korea was hotly debated at the time. It was the proximate cause of the MacArthur imbroglio. The argument for a full-scale attack on Manchurian bases or China as a whole was, at best, a critique of the administration's choice as to weight of effort against the Communist bloc, not to mention a challenge to its assessment of risk. One result was a prolonged discussion in the United States throughout the 1950s and 1960s of the theory of "limited war." The fact that the war was not limited for the Koreans, or that the combatants of all nations often made an unlimited sacrifice, did not affect the terms of the discussion.

For the crews of FEAF Bomber Command, the war was both limited and unlimited. Of over 6,000 personnel flying on combat crews, Bomber Command sustained 635 dead or missing (nearly 11 percent of the force), while 96 crewmen (nearly 2 percent of the force) returned wounded. More than one hundred B-29 crewmen (nearly 2 percent) became prisoners of the Communists and were returned in the releases of 1953. In short, not quite 14 percent of FEAF Bomber Command's combat aircrews were killed, wounded, or captured. The command flew approximately 21,000 B-29 sorties in the course of the war, of which 12,000 (57 percent of the total) were against the enemy transportation system—roads, railroads, bridges, marshaling yards, supply centers, and the like—while 2,800 (13 percent) were in support of ground units. Industrial targets were the objective of 1,400 sorties (nearly 7 percent); 1,250 sorties (6 percent) were against airfields, and 700 sorties (3 percent) targeted troop dispersal areas. They dropped a total of 167,000 tons of bombs, and flew almost every day of the war. On average, every day of the war, FEAF Bomber Command flew 20 Superfortress sorties; each sortie carried an average of approximately 8 tons of bombs to the enemy. From the standpoint of delivering bombs on-target, the bomber crews, supported by the maintainers, suppliers, and planners, did the job.

To policymakers, Korea was a "limited war," a "police action." However, with all-too-vivid memories of enemy fighters rising from sanctuary airfields beyond the Yalu; of supplies from off-limits Manchurian factories and storage facilities passing across the Yalu with relative impunity; of stalemate continuing along the front for two years; of remorseless MiGs hosing formations with long bursts of cannon fire; and of burning, exploding, and shattered and limping Superfortresses, Bomber Command's airmen could be forgiven if they found the war frustratingly constrained in comparison with the no-holds-barred struggle-to-the-death that had characterized the Second World War. The Korean war was a "police action" in more ways than one. By day and by night the B-29 crews set out to seek their targets and hit them, to restrain the enemy

supply system, maintain air superiority, and to deal with battlefield emergencies. With courage and steadfastness, Bomber Command's aircrews policed their assigned beat, stoically enduring their losses. Many were their missions, many were their accomplishments.

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